Vol. 26. No. 3. pp. 111 - 178
Abstracts 672 - 1089

March, 1956

THE VETERINARY BULLETIN

COMPILED FROM WORLD LITERATURE

Prepared by the
COMMONWEALTH BUREAU OF ANIMAL HEALTH
WEYBRIDGE, SURREY
ENGLAND

Published by the
COMMONWEALTH AGRICULTURAL BUREAUX
FARNHAM ROYAL, ENGLAND

COMMONWEALTH MYCOLOGICAL INSTITUTE
9 MAR 1956

Commonwealth Agricultural Bureaux

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THE

VETERINARY BULLETIN

Vol. 26] March, 1956 [No. 3

DISEASES CAUSED BY BACTERIA AND FUNGI

GOULD, J. C. (1955). **Origin of penicillin-resistant** *Staphylococcus pyogenes*.—*Nature, Lond.* **176,** 176. **672**

Resistant organisms derived *in vitro* from a sensitive strain were of two types. One produced no penicillinase and was of the same phage type as the parent strain, while the other produced penicillinase and was of phage group III even when the parent strain was of group I or II.

The isolation of a resistant type, of differing phage group from the original, does not necessarily indicate a second infection in the patient.—A. SEAMAN.

RICHOU, R. & RICHOU, R. (Mme.) (1955). Sur l'action antagoniste du propionate de sodium à l'égard du staphylocoque. **[Action of sodium propionate on staphylococci.]** —*C. R. Soc. Biol., Paris.* **149,** 943-945. **673**

Twenty-six strains of human, bovine, canine or feline origin were inhibited by levels ranging from 0·01 to 0·05%. One strain was resistant to a concentration of 1%.

—A. SEAMAN.

MUNCH-PETERSEN, E. (1954). **A corynebacterial agent which protects ruminant erythrocytes against staphylococcal β toxin.**—*Aust. J. exp. Biol. med. Sci.* **32,** 361-368. **674**

A diffusible, filtrable agent has been isolate from cultures of strains of an organism, closely related to *Corynebacterium flavidum* and derived from milk, which prevents the lytic action of staphylococcal β toxin on sheep r.b.c. The factor was shown to absorb upon r.b.c. which then appeared to be increased in size but of normal shape. The agent failed to combine with, or to inactivate, β staphylococcal toxin under conditions of the test, and it was shown that protection of the r.b.c. against staphylococcal haemolysin depended upon prior absorption of the agent.

—J. H. WHITTEM.

SCHULTE, F. (1955). Diplokokken-Meningoencephalomyelitis bei Ferkeln. **[Diplococcal meningo-encephalomyelitis in piglets.]** —*Dtsch. tierärztl. Wschr.* **62,** 364-367. **675**

A report of an outbreak of diplococcal meningo-encephalomyelitis among 15 piglets, 3–4 weeks old. Clinical symptoms consisted of contractions of the muscles of the back, disturbance of consciousness and generalized paresis, and in some cases rigidity of the neck. The lesions were acute internal hydrocephalus with secondary flattening of the cerebral convolutions, suppurative leptomeningitis, and a thickening of the ependyma. The condition was associated with vitamin A deficiency.

—F. K. LEEB.

I. & II. HOWELL, D. G., PATTISON, I. H., HOLMAN, H. H. & SMITH, I. M. (1954). **Experimental streptococcal mastitis. IX. The disease in the cow. X. The importance of a serum staphylococcal hyaluronidase inhibitor in infection of the cow.**—*J. comp. Path.* **64,** 335-350 & 351-355. [For previous parts, see *V.B.* **21,** 633, 634, 3442, 3443; **22,** 1942; **23,** 1792; **25,** 10, 11.] **676**

I. In 3 experiments inoculations were made into one quarter of the udder of each of 35 cows, using one or the other of 2 distinct strains of *Str. agalactiae*. The reactions to inoculation were similar to those previously reported in goats by the authors, but whereas the goats were readily infected about 50% of the cows were resistant. The establishment of infection was apparently related to the number of viable streptococci inoculated, and it seemed possible that the resistance shown by certain cows might be overcome by inoculating a sufficient number of organisms.

II. The authors studied the infectivity of *Str. agalactiae* when inoculated into the udder in 40 cows, 23 of which had serum containing an inhibitor to staphylococcal hyalu-

ronidase while the remaining 17 did not. All of the 17 cows not possessing the inhibitor were infected, while of the 23 possessing the inhibitor only 12 were infected. The authors considered it unlikely, however, that the possession of such an inhibitor was directly concerned with the resistance of certain cows to *Str. agalactiae*. They considered it likely that possession of this inhibitor was associated with possession of some other, more important, protective factor.—A.S.

WILSON, C. D. (1955). **Hibitane: a new disinfectant for the control of mastitis.** — *Vet. Rec.* **67,** 645-650. [Author's summary modified.] **677**

The disinfectant 1 : 6-di-4′-chlorophenyldiguanidohexane, claimed to be bactericidal against both Gram-positive and Gram-negative bacteria, was used in 5 herds as an udder wash, and for disinfecting the milkers' hands and the teat clusters. Although the herds had histories of persistent infection with *Str. agalactiae* due to the presence of chronically infected cows, 4 were freed entirely from infection, either by disposal or special treatment of the chronically infected cows. After use of the disinfectant had been discontinued, in one of these herds there was an unexplained re-introduction of infection which spread to more than half of the cows within 8 months. The 3 other herds were still free from infection 12 months later. In the fifth herd infection was confined to a single chronic case, while in a control herd, in which hypochlorite was used, spread of *Str. agalactiae* continued.

FERRINI, R., SERRA, P. & SANSOÈ, D. (1955). Sul trattamento della mastite streptococcica bovina con gli ultrasuoni. **[Ultrasonic treatment of bovine mastitis.]** — *Veterinaria, Milan.* **4,** No. 4, pp. 19-27. [English, French and German summaries. **678**

The passage of ultrasonic waves through inflamed udder tissue has no curative effect on the condition. The authors believe, however, that ultrasonic treatment has a beneficial effect on chronic mastitis, when used in conjunction with penicillin and streptomycin therapy. They employed an apparatus which gave a field intensity of 5 W/sec./cm² at a frequency of 800 Kc. The waves were transmitted to the udder through a mixture of glycerol and soft paraffin for 10 daily periods, each of 5 min. —I. W. JENNINGS.

DHANDA, M. R. & SINGH, M. M. (1955). *Streptococcus agalactiae* **from the lung abscesses of a dairy calf.**—*Indian vet. J.* **32,** 40-42. **679**

Str. agalactiae, serologically typed, was isolated from multiple abscesses in the lungs of a weaned calf. The organism was also present in the dam's milk.—R. N. MOHAN.

HAMMER, D. (1955). Pneumokokkeninfektion beim Kalb unter besonderer Berücksichtigung der Epidemiologie. [*Streptococcus pneumoniae* **infection in calves, with special reference to epidemiology.**]—*Dtsch. tierärztl. Wschr.* **62,** 24-28. **680**

Calf mortality caused very severe economic losses in the southern district of Baden, Germany, during the last three years. In 75% of cases death was due to infection with pneumococci; only 20% were attributed to *Bact. coli* and about 10% to streptococcal, *Pseudomonas* and *Haemophilus influenzae* infections.—W. G. SILLER.

HAMMER, D. (1955). Die Verteilung von Pneumokokkentypen bei Mensch und Kalb unter Berücksichtigung der Übertragungsmöglichkeit. **[Types of pneumococci in man and the calf with particular reference to the possibility of transmission.]**—*Zbl. VetMed.* **2,** 218-230. [English, French and Spanish summaries.] **681**

More than 1,200 cases of pneumococcal infection in calves were observed in South Baden during the period April 1951–September 1954, and 1,088 pneumococcal strains were investigated serologically. In the majority of cases the higher types (4–46) were isolated, and in only 1·1% were types 1, 2 and 3 found. Organisms of the homologous type could be recovered from the respiratory mucosa of human carriers, suffering from otitis media and catarrh or convalescent from pneumonia. Removal of human carriers considerably decreased the loss of calves from pneumococcal infections.—W. R. BETT.

SOMOVA, A. G. (1955). **[Filtrable forms of haemolytic streptococci in broth cultures.]**—*Microbiology, Moscow.* **24,** 280-284. [In Russian.] **682**

To 24-hour and 5-day-old broth cultures of haemolytic streptococci a few drops of ammonia were added, then they were filtered through Seitz filters, and varying quantities of the filtrates added to media containing yeast suspensions. S. claimed to have obtained regeneration of streptococci, at first only green, but after a few subcultures haemolytic, from filtrates of all the strains examined.

Parallel culture of filtrates through the chick embryo yielded only a small number of positive results. Small quantities of the filtrates gave better results than large. [No typing was carried out to establish the identity of the strains growing from the filtrate with those filtered.]

—A. Mayr-Harting.

Savel'volf, G. B., Konikov, A. P. & Shtern, E. A. (1955). **[Some characteristics of respiration, protein synthesis and phosphorus fixation in "regenerated" strains from filtrates of broth cultures of haemolytic streptococci.]**—*Microbiology, Moscow.* **24,** 400-407. [In Russian.] **683**

From a thousand filtrates of broth cultures of haemolytic streptococci, 113 "regenerated" streptococcal cultures were obtained. Only 10% of these resembled the original strain, the rest were non-haemolytic, and differed from the original strain antigenically. Three original strains, 8 haemolytic and 10 non-haemolytic "regenerated" strains were compared bio-chemically. [The possibility that the "regenerated" organisms were contaminants is not mentioned.]

—A. Mayr-Harting.

I. Keppie, J., Smith, H. & Harris-Smith, P. W. (1955). **The chemical basis of the virulence of *Bacillus anthracis*. III. the role of the terminal bacteraemia in death of guinea-pigs from anthrax.**—*Brit. J. exp. Path.* **36,** 315-322. **684**

II. Smith, H., Keppie, J., Stanley, J. L. & Harris-Smith, P. W. (1955). **The chemical basis of the virulence of *Bacillus anthracis*. IV. Secondary shock as the major factor in death of guinea-pigs from anthrax.**—*Ibid.* 323-335. **685**

III. Ross, J. M. (1955). **On the histopathology of experimental anthrax in the guinea-pig.**—*Ibid.* 336-339. **686**

I. When streptomycin was used to remove an experimental infection with *B. anthracis* from g. pigs, it was found that their life could be saved only if at the time of treatment the bacteraemia had not increased beyond about 3×10^6 chains per ml. of blood, *i.e.*, only about 1/300th of the degree of proliferation which had occurred at the time of death in untreated animals. Beyond that level death occurred in spite of the fact that no active infection persisted. A study of various blood constants revealed that several abnormalities previously incriminated by other authors were merely secondary side-effects. The distribution of organisms during the final phase of anthrax in g. pigs was said to point to the blood and spleen as possible sites for the production of harmful products.

II. A study of the blood chemistry, physiology and histopathology of g. pigs dying from anthrax produced evidence of a state of secondary shock which the authors regarded as the major cause of death. This finding led to the demonstration of the specific lethal factor of *B. anthracis,* to be described elsewhere.

III. Histological examination of kidneys from these g. pigs revealed that in the early stages of bacteraemia the renal changes are those occurring in any infectious disease, while the more severe changes seen in the later stages include damage to the descending loop of Henle in the cortico-medullary region, degenerative changes in the cytoplasm and some kariolysis in many cells of the tubules, as well as a decrease in kidney alkaline phosphatase.—G. P. Marshall.

Davies, D. G. & Harvey, R. W. S. (1955). **The isolation of *Bacillus anthracis* from bones.**—*Lancet.* **269,** 86-87. [Authors' summary modified.] **687**

Anthrax spores were demonstrated by animal inoculation in 5 out of 41 cargoes of imported bones. The sample examined from each cargo consisted of 500 g. of crushed bones only, and it often happened that only one of many g. pigs inoculated developed anthrax. A result of this kind suggests that the proportion of cargoes found to contain infected bones was a very considerable underestimate. Cultural methods were found quite unsuitable for the material studied.

Basset, J. (1953). Immunologie et prophylaxie de la tuberculose chez l'homme et chez le boeuf. **[Immunology and prevention of tuberculosis in man and cattle.]** pp. xv + 175. Paris: Vigot Frères. Fr. 850. **688**

In this monograph B. makes an impassioned attack on the use of vaccines in general and the vaccination of human beings against TB. in particular. He states that vaccination is not the only nor the best method of controlling TB. and that the compulsory and indiscriminate use of vaccines is more dangerous than the risk of natural infection. He compares work and experience on the immunization of human beings and cattle against TB., stressing the unreliable results obtained in

cattle. Methods are suggested for the more effective prevention of human TB., based on hygienic measures and the early detection of infection, with reference to the success achieved in cattle by the application of similar measures.—R.M.

WEBER, W. (1955). Das Elektropherogramm des Blutserums tuberkulöser Rinder. **[Electrophoretic pattern of the blood serum of tuberculous cattle.]**—*Schweiz. Arch. Tierheilk.* **97,** 222-229. [English, French and Italian summaries.] **689**

In cattle with a slight tuberculous infection there was little change in the serum protein fractions, while in heavily infected cattle there were changes in the serum albumin and γ-globulin up to 50% or more. Animals manifesting anergic intradermal tuberculin reactions can be diagnosed as diseased by the electrophoretic pattern of the blood serum.
—W. R. BETT.

SCHMID, G. (1955). Beobachtungen über den Hämagglutinations-Hämolyse-Titer im Blutserum und den Hämolyse-Titer in der Milch von Kühen mit Eutertuberkulose. **[Observations on haemagglutinin and haemolysin titres of the blood serum and milk of cows with TB. of the udder.]**—*Schweiz. Arch. Tierheilk.* **97,** 68-72. [English, French and Italian summaries] **690**

The haemolysin titres of 32 milk samples from tuberculous udders ranged from 1 : 40 to 1 : 640. False positive results may occur in milk from cows with streptococcal mastitis. S. suggested that if all cows having a haemolysin titre of the blood serum of 1 : 80 or higher were slaughtered, cases of widespread TB. and TB. of the udder would be eliminated. The results of the haemagglutination test did not admit such a simple interpretation. [See also *V.B.* **25,** 3512.]—R.M.

ELEK, P. (1954). Veränderungen des Tuberkuloseantikörpergehaltes bei Rindern in der Periode des Kalbens und die Übertragung der Antikörper vom Muttertier auf Neugeborene. **[Tuberculosis antibody levels in cattle at time of parturition and maternal transfer of immunity.]**—*Acta vet., hung.* **4,** 401-404. [In German. Russian summary.] **691**

Based on results of examination of TB. antibody levels in serum, whey and colostrum samples obtained at various stages during pregnancy and after parturition in 11 artificially infected heifers and their offspring, E. concluded that in TB. transfer of maternal immunity follows a pattern similar to that in other infectious diseases.—E.G.

RAM, T. & SHARMA, R. M. (1955). **Tuberculosis infection in Hariana Hissar cattle. Effect on average span of life, breeding efficiency and incidence of infection in progeny.**—*Indian. J. vet. Sci.* **25,** 99-104. **692**

Records of over 300 tuberculin-positive cows were compared with those of over 400 tuberculin-negative cows of the same breed and age group. The only difference found to be statistically significant was the shorter average span of life in the tuberculin-positive group.
—R. N. MOHAN.

LEBEK, G. & STEINERT, C. (1955). Ein Beitrag zur Frage der Häufigkeit der bovinen extrapulmonaren Tuberkulose-Infektion bei Kindern in Bayern. **[Incidence of non-pulmonary TB. of bovine origin in children in Bavaria.]**—*Z. Hyg. InfektKr.* **141,** 218-234. **693**

Out of 106 strains of *Mycobact. tuberculosis* isolated from children with TB. of a predominantly non-pulmonary character, 37 were of bovine type and 69 of human type.
—R.M.

NOUFFLARD, H. & BERTEAUX, S. (1955). **A slide-culture method for tubercle bacilli in the lesions of mice.** — *Amer. Rev. Tuberc.* **72,** 330-339. [French and Spanish summaries.] **694**

Suspensions of infected tissues are used as inocula in the slide-culture technique. By inoculating suspect material into mice and using the mouse tissue after 24 hours it is possible to obtain results from the sensitivity test in a very short time.—A. SEAMAN.

TSUJI, S. & ITO, K. (1955). **An *in vivo* method of culturing tubercle bacilli: the chamber method.**—*Amer. Rev. Tuberc.* **72,** 393-397. **695**

The culture chamber consists of a watch glass (inoculated by smearing with a drop of benzene-dispersed culture) which is filled with saline, covered with parchment and filter paper and with a perforated plastic plate which is bound on. It is inserted into the peritoneal cavity of a rabbit. After 5 days the protein content of the fluid in the chamber is equal to that of the body. About a month after implantation the fluid and the watch glass are stained and growth similar to that in slide cultures is

noted. Avian type strains can be grown if cellophane is used in place of the parchment.
—A. SEAMAN.

O'HEA, A. J. (1955). **Counting viable tubercle bacilli.**—*J. Path. Bact.* **69,** 169-174. **696**

Counts made on Loewenstein Jensen's medium in bijou bottles, inoculated from a dilution in Proskauer & Beck's medium, showed good agreement with counts by the method described by Fenner, using oleic acid-albumin-agar plates. Contamination was almost eliminated and with both of these media the organism survived well in storage.
—A. SEAMAN.

SMITH, D. W., HARRELL, W. K. & RANDALL, H. M. (1954). **Correlation of biologic properties of strains of *Mycobacterium* with their infrared spectrums. III. Differentiation of bovine and human varieties of *M. tuberculosis* by means of their infrared spectrums.** —*Amer. Rev. Tuberc.* **69,** 505-510. [French and Spanish summaries.] **697**

A fraction, isolated *via* organic solvents and chromatography, but so far not characterized chemically, was identified in 3 bovine-type strains of the tubercle bacillus examined, but was absent from 11 recently isolated human-type strains. Extracts of avian type tubercle bacilli had an infra-red absorption spectrum differing widely from that of human and bovine type extracts.—A. B. PATERSON.

SEELEMANN, M. & RACKOW, H.-G. (1955). Vergleichende Untersuchungen mit Säuger- und Geflügeltuberkulin an Rindern. **[Comparative studies in cattle with mammalian and avian types of tuberculin.]** — *Zbl. Vet-Med.* **2,** 326-338. [English, French and Spanish summaries.] **698**

In comparative tests using mammalian and avian tuberculin on 360 adult and young cattle, 284 reacted to mammalian tuberculin and of these only 29·2% were positive, 24·7% were doubtful and 46·1% were negative to avian tuberculin, indicating the absence of a definite relationship between the mammalian and avian reactions. In calves, artificially infected with the avian type of tubercle bacillus, the difference in the increase in skin thickness was found in some cases to be considerably less than 3 mm. The authors concluded that whereas the comparative test is of value in some doubtful cases it cannot be used for differentiation between mammalian and avian types of infection (or Johne's disease) with certainty.—W. G. SILLER.

THIEL, W. (1955). Nachweis von Tuberkelbakterien in makroskopisch tuberkulosefreien Organen von tuberkulinpositiven Rindern. **[Demonstration of tubercle bacilli in cattle free from lesions which had yielded positive tuberculin reactions.]**—*Berl. Münch. tierärztl. Wschr.* **68,** 230-232. [English summary.] **699**

During 1950–54 a total of 172 slaughter cattle, free from lesions of TB., were examined for the presence of tubercle bacilli. Tuberculin tests before slaughter yielded a positive reaction in 115 animals, while 57 showed a non-specific reaction. Tubercle bacilli were isolated from the organs and lymph nodes of 43 of the 115 tuberculin positive animals. Of these, 34 were of the bovine, 8 of the human and 2 of the avian type. Of the 57 animals which had yielded a doubtful tuberculin reaction, tubercle bacilli were demonstrable in 10; 8 were of the bovine and 2 of the human type. In one animal acid-fast, non-pathogenic mycobacteria were isolated from the lymph nodes.—F. K. LEEB.

HARTWIGK, H. & FUNK, G. (1955). Vergleichende Untersuchungen über die Hämagglutinations- und Hämolyse-Reaktion mit Magermilch and Milchserum. **[Comparison of the haemagglutination and haemolysis reactions with separated milk and whey.]**—*Zbl. Vet-Med.* **2,** 459-467. [English, French and Spanish summaries.] **700**

Separated milk can be satisfactorily used for both haemagglutination and haemolysis tests for TB. in cattle. With whey the latter test is preferable. When both tests are negative with separated milk or whey, there exists a 95% probability that there is no TB. of the udder. A positive reaction may be due to TB. in other organs. Serological tests with milk or whey plus the i/d tuberculin test are advised for heavily infected herds.
—W. R. BETT.

SHISHKINA, E. Y. (1955). **[TB. and tuberculin testing in sheep.]**—*Veterinariya, Moscow.* **32,** No. 6. pp. 43-44. [In Russian.] **701**

On farms with tuberculin-positive cattle, sheep also were tuberculin tested: 3·4–7% yielded positive reactions. A few P.M. examinations were carried out and tuberculous foci were found in lymph nodes and, in two cases, in the liver.—A. MAYR-HARTING.

LURIE, M. B., ZAPPASODI, P. & TICKNER, C. (1955). **On the nature of genetic resistance to tuberculosis in the light of the host-para-**

site relationships in natively resistant and susceptible rabbits.—*Amer. Rev. Tuberc.* **72,** 297-329. [French and Spanish summaries.] **702**

Virulence of individual cells of tubercle bacilli of human origin from an aerosol of H37Rv penetrating the lungs of natively resistant and susceptible rabbits is not a significant factor in the formation of primary pulmonary tubercles characteristic for each race. In both susceptible and resistant strains the population changes of the bacilli in the lungs are very similar to those of micro-organisms growing in an artificial medium, with a lag phase in bacillary accumulation, a period of logarithmic growth, and a phase of decline. The lung of the resistant rabbit is a poorer medium for growth than the lung of the susceptible rabbit. Greater initial inhibition of growth in resistant animals is due to inherent non-specific constitutional factors rather than to more rapid development of acquired resistance. Resistant rabbits acquire more effectively increased resistance to infection, which is superimposed on, and quantitatively determined by, native resistance. Increased initial bacteriostasis in resistant animals persists in the foci in which tubercles have formed. Failure of dissemination is explained by more effective destruction of focalized bacilli in the resistant rabbit rather than by fixation of the bacilli at the portal of entry. Host responses in resistant rabbits are generally accelerated.—W. R. Bett.

Rosati, T. & Tini, R. (1955). Sull'andamento della reazione tubercolinica in bovini naturalmente infetti e trattati con idrazide dell'acido isonicotinico. **[The tuberculin reaction in tuberculous cattle after treatment with *iso*-nicotinic acid hydrazide.]**—*Vet. ital.* **6,** 895-905. [English, French and German summaries.] **703**

Seven tuberculin-positive cattle were treated with *iso*-nicotinic acid hydrazide over 60 days. At the end of the course, and for a month thereafter, they remained positive. Four of them were given a further course of treatment, at the end of which 3 animals still yielded a positive reaction, and one failed to react. On P.M. examination, this negative reactor showed no lesions, but the other 6 had macroscopic lesions. The authors concluded that *iso*-nicotinic acid hydrazide therapy does not interfere with the tuberculin reaction.

—I. W. Jennings.

Guilleret, J. (1955). Essai de traitement de la tuberculose des carnivores par l'association d'un antibiotique et de la tuberculine. **[Combined treatment of TB. in carnivores with antibiotics and tuberculin.]**—*Thesis, Paris (Alfort).* pp. 90. **704**

Daily injections of dihydrostreptomycin sulphate were made at the level of 0·2–0·25 g. subcutaneously, for cats or 0·5–1 g. intramuscularly for dogs. Alternatively *iso*-nicotinic acid hydrazide was given at 10 mg./kg. for the first 8 days and then at 5 mg./kg. (orally or intramuscularly).

Tuberculin was injected subcutaneously every second day, initally at 1 ml. of 1 : 100 and increasing over 30–40 days to 1 ml. of 1 : 10.

Ten dogs and 8 cats were treated.

There were 8 apparently permanent remissions, including 3 pulmonary cases and the only ocular case. In 5 there was transient improvement; this group included 2 dying from other causes. In 5 there was no improvement.—A. Seaman.

I. Trautwein, K., Nassal, J., Kopp, C. & Karle, L. (1955). Die Desinfektionswirkung von Glykolen auf Tuberkelbakterien und ihre praktische Anwendung. **[Disinfectant action of glycols on tubercle bacilli and its practical application.]**—*Rindertuberkulose.* **4,** 171-187. **705**

II. Meyn, A. & Schliesser, T. (1955). Desinfektionsversuche an Tuberkelbakterien mit dem Präparat "QE 383". **[Disinfection in TB. using the preparation "QE 383".]**—*Ibid.* 187-192. **706**

I. & II. Glycol mixtures "QE 383c" and "VE 455" ("sigambol A and B") are free from noxious properties, and prove very efficacious as disinfectants. QE 383, with 6 parts of water, is as effective as 3% formol against tubercle bacilli, and, used as an aerosol, is effective for the disinfection of stalls.

—F. R. Paulsen.

Rheins, M. S. & Thurston, J. R. (1955). **Additional tuberculosis antibodies demonstrated with erythrocytes sensitized by successive adsorptions of Old Tuberculin and further studies on the adsorptive capacities of tanned cells.** — *Amer. Rev. Tuberc.* **72,** 210-217. [French and Spanish summaries.] **707**

During successive absorption with sheep r.b.c., preferential removal of some antigens occurred. This permitted the demonstration of both haemolysins and agglutinins which are normally obscured by the major components.

Treatment of the sheep r.b.c. with tannic acid did not affect the absorption of either antigen from purified protein derivative or lytic antigen from Old Tuberculin, but absorption of agglutinogens was impaired.

—A. SEAMAN.

ROSENBERGER, G. & KRAUSE, D. (1955). Die Diagnose der Paratuberkulose des Rindes mittels der Komplementbindungsreaktion nach Hole. **[Diagnosis of Johne's disease by the complement-fixation test described by Hole.]**—*Dtsch. tierärztl. Wschr.* **62,** 161-164. **708**

In 131 cattle free from TB. and from Johne's disease Hole's c.f. test was negative in 120, doubtful in 5 and positive in 6 cases. Of 101 tuberculous cattle free from Johne's disease 24 were positive, 31 doubtful and 46 negative; of 8 cattle clinically affected with Johne's disease 7 were positive and one a doubtful reactor. Of 47 tuberculin negative cattle which had been inoculated with live Johne's disease vaccine, 20 were positive reactors, 12 doubtful and only 15 negative. The c.f. test is therefore of value in confirming the diagnosis of Johne's disease in suspected cases in a herd free from TB.

—W. G. SILLER.

PEARSON, J. K. L. & MCCLELLAND, T. G. (1955). **Uterine infection and congenital Johne's disease in cattle.**—*Vet. Rec.* **67,** 615-616. [Authors' summary modified.] **709**

A case of congenital infection of the foetus with *Mycobacterium johnei* is recorded, the organism being isolated from the ileo-caecal lymph nodes and bowel of the foetus, as well as from the uterine mucosa of the dam. A second case of infection of the bovine uterus with *M. johnei* is also recorded. No macroscopic pathological changes in the uterine tissue of either cow were observed.

RANKIN, J. D. (1954). **The presence of *Mycobacterium johnei* in apparently normal cattle.** — *Vet. Rec.* **66,** 550-551. [Author's summary slightly modified.] **710**

M. johnei was recovered in culture from lymph nodes of 6 and 7·5% of 2 groups of apparently normal slaughtered cattle. The corresponding figure for cattle from Ireland slaughtered in England was 0·8%.

RANKIN, J. D. (1955). **The erythrocyte sedimentation rate in normal cattle and in cattle infected with *Mycobacterium johnei*.** — *Brit. vet. J.* **111,** 480-483. [Author's summary modified.] **711**

Experimental infection of cattle with Johne's disease did not increase the erythrocyte sedimentation rate [E.S.R.] even in advanced clinical cases. For reasons stated, standards for the E.S.R. of normal bovine blood cannot be formulated.

CROSS, M. H. & HUGHES, L. E. (1955). **Johne's disease in a lamb.**—*Vet. Rec.* **67,** 864-865. **712**

Organisms resembling *Mycobacterium johnei* were present in the mesenteric lymph nodes and intestinal mucosa of a 6-month-old lamb with a history of wasting and severe scouring.—C. C. BANNATYNE.

DÉOM, J. & MORTELMANS, J. (1955). Existence de la maladie de Johne au Congo Belge. **[Johne's disease in the Belgian Congo.]** — *Bull. Off. int. Epiz.* **43,** 778-785. [English summary.] **713**

The presence of Johne's disease in the Belgian Congo was first noted in Oct. 1953. In all, 6 cattle out of 20 examined were affected. The authors believe that infection is disseminated in the calving kraals. They recommend that measures should be taken without delay to prevent the spread of the disease throughout the territory.

—I. W. JENNINGS.

BAUMANN, R., KRENN, E. & LIEBISCH, H. (1955). Die käsige Lymphknotenentzündung der Schweine. (IV. Bakteriologische Untersuchungen). **[Caseous lymphadenitis in pigs. IV. Bacteriology.]** — *Wien. tierärztl. Mschr.* **42,** 546-549. [English, French and Italian summaries.] **714**

The authors described the morphology and cultural behaviour of acid-fast mycobacteria isolated from the mesenteric lymph nodes of 15 pigs affected with porcine caseous lymphadenitis. [See also *V.B.* **25,** 3350, 4131].

—F. K. LEEB.

DHANDA, M. R. & SINGH, M. M. (1955). *Corynebacterium ovis* **infection in goats. (A record of an outbreak.)**—*Indian vet. J.* **32,** 43-46. **715**

The authors described the characters, including pathogenicity for g. pigs, of *C. ovis*, isolated from abscesses in the superficial lymph nodes around the throat in goats.

—R. N. MOHAN.

I. Brill, J. (1955). Patogeneza różycy świn. [**Pathogenesis of swine erysipelas.**]—*Roczn. Nauk. rol.* Ser. E. **66,** 469-489. **716**

II. Stryszak, A. (1955). Rola czynników środowiskowych w patogenezie różycy. [**Environmental factors in the pathogenesis of swine erysipelas.**]—*Ibid.* 509-534. **717**

III. Szynkiewicz, Z. (1955). Nosicielstwo włoskowców różycy na migdałkach świń zdrowych poddanych ubojowi. [**Role of carriers of *E. rhusiopathiae* in the pathogenesis of swine erysipelas.**]—*Ibid.* 535-542. **718**

IV. Anusz, Z. (1955). Rola nosicielstwa włoskowca różycy w patogenezie różycy trzody chlewnej. [**Carriers of *E. rhusiopathiae* in the pathogenesis of the disease in pigs.**—*Ibid.* 543-548. **719**

V. Stryszak, A. & Oyrzanowska, J. (1955). Ustalenie dróg naturalego zakażania się białych myszy włosko-wcem różycy z uwzględnieniem wpływu temperatury. [**Effect of environmental temperature on the infection of mice with *E. rhusiopathiae.***]—*Ibid.* 549-558. **720**

VI. Żebrowski, S. (1955). Wpływ dodawania do zagęszczonej hodowli Stauba substancji adsorbujących i zwalniających wchłanianie antygenu na trwanie odporności poszczepiennej u myszek bialych. [**Immunity in mice against *E. rhusiopathiae* following inoculation of a non-virulent strain, with and without the addition of substances delaying absorption.**]—*Ibid.* 559-569. **721**

VII. Brill, J. & Polityńska, E. (1955). Katalaza we krwi świń i myszy zdrowych oraz zakażonych włoskowcami rożycy. [**Blood catalase of pigs and mice inoculated with *E. rhusiopathiae.***]—*Ibid.* 571-583. **722**

VIII. Brill, J. & Polityńska, E. (1955). Katalaza w hodowlach włoskowca różycy. [**Absence of catalase in cultures of *E. rhusiopathiae.***]—*Ibid.* 585-590. **723**

IX. Polityńska, E. (1955). Wykrywanie siarkowodoru w hodowlach włoskowca rożycy (*Erycipelothrix rhusiopathiae*) przy użyciu jonów różnych metali. [**Use of heavy metals in the detection of hydrogen sulphide production of *E. rhusiopathiae.***]—*Ibid.* 591-601. [In Polish, English and Russian summaries. Abst. from English summaries.] **724**

I. A discussion of factors affecting the incidence of swine erysipelas in Poland, and of problems connected with the pathogenesis of the disease.

II. S. concluded that environmental factors are relatively unimportant in the pathogenesis of swine erysipelas. Of greater importance was the presence of the causal organism in the pigsty: biennial disinfection of sties over a period of 3 years led to a marked reduction in the incidence of the disease.

III. *E. rhusiopathiae* was present in the tonsils of 82% of 274 apparently healthy pigs. Out of 51 strains isolated, and classified according to the method described by Dedié [*V.B.* **20,** 1573 & **23,** 2764], 20 were type A, one was type B, and 26 were type N; the remainder were unclassified.

IV. The percentage of carriers of *E. rhusiopathiae* amongst apparently healthy vaccinated pigs was not influenced by the use of either avirulent or live vaccines. There was no marked relationship between the percentage of carriers and the percentage of pigs which developed swine erysipelas.

V. Transmission of *E. rhusiopathiae* infection in mice by contact took place only at environmental temperatures greater than 20°C.

VI. A high proportion of mice inoculated with non-virulent erysipelas vaccine to which either semi-solid agar or aluminium hydroxide had been added, were immune 5 or 6 months after inoculation.

VII. The blood catalase level in mice inoculated with *E. rhusiopathiae* was 30% lower than that of normal mice. In artificially infected pigs, the level was reduced by 18–20% in the septicaemic form of the disease, and by 8–11% when the infection was characterized by skin lesions in the absence of septicaemia. Daily fluctuations in the blood catalase level of individual pigs amounted to 5%.

VIII. Catalase was not detected in any of 64 strains of *E. rhusiopathiae.*

IX. Lead acetate was the only infallible indicator of H_2S formation in agar cultures of *E. rhusiopathiae.* The substitution of lead by cobalt, nickel or bismuth gave negative results. P. was unable to differentiate between strains of the organism on the basis of H_2S production.—R.M.

Charles, J. (1955). Avortements chez le porc, dus au bacille du rouget. [**Abortion in sows caused by *E. rhusiopathiae.***] — *Schweiz. Arch. Tierheilk.* **97,** 331-333. [In French. English, German and Italian summaries.] **725**

An organism resembling *E. rhusiopathiae*

culturally and in its pathogenicity, was isolated from the aborted foetuses of 3 sows which had shown no signs of infection other than abortion.—A. Seaman.

Dräger, K., Fiege, H. & Schindler, R. (1954). Rotlauf-Adsorbat-Impfstoff und Simultanimpfung. **[Swine erysipelas adsorbate vaccine and simultaneous vaccination.]** *Vet.-med. Nachr.* No. 1, 21-26. [Summaries in Suppl. No. 1/1954. English summary: p. 4. French summary: pp. 10-11. Spanish summary: pp. 17-18.] **726**

The authors compared official figures recorded in 1950 and 1951 of the incidence of breaks in immunity following the use of swine erysipelas adsorbate vaccine and of the simultaneous serum and culture method of vaccination. Following the use of adsorbate vaccine in over a million pigs in 1950 there were 114 breaks in immunity as compared with 74 in 1951 when about 100,000 more pigs were vaccinated. The decrease was attributed to an improvement in the purity and antigenic potency of the vaccine.—W. G. Siller.

Becker, Knoth & Pilz (1955). Können Nachteile bei der Simultanimpfung gegen Schweinerotlauf nach Lorenz bei Anwendung der Mischspritze eintreten? **[Disadvantages of the serum-culture method of immunization against swine erysipelas.]**—*Mh. VetMed.* **10,** 345-346. **727**

Reports of frequent breaks in immunity following the use of a serum-culture mixture prompted the authors to investigate the possible influence of the preservative in the antiserum on the virulence of cultures in the mixture. Bacteriological examination of the mixture at various times, and tests on mice, showed that if the serum-culture mixture was allowed to stand for more than three hours before use, the phenolized antiserum diminished the virulence of the organisms in the culture, thereby substantially reducing the efficiency of this method of immunization.
—F. K. Leeb.

Janowski, H. (1955). Analiza i ocena wartości szczepień przeciwróżycowych w Polsce za rok 1953. **[Results of immunization against swine erysipelas in Poland in 1953.]**—*Méd. vét., Varsovie.* **11,** 80-82. **728**

The over-all incidence of breaks in immunity among 8,059,787 vaccinated pigs was 0·4%. Two methods were used. In those in which the "virulent culture and serum" method was used failures (0·03%) occurred, mainly in late spring and autumn, in the form of small outbreaks. With the "avirulent culture" (Staub) method failures (0·06%) occurred sporadically throughout the year. The former vaccine appeared to confer a slightly longer immunity (3–6 months). The latter vaccine is nevertheless still very popular, being both cheaper to produce and simpler to administer.
—M. Gitter.

Stenberg, H. & Hämmäinen, T. (1955). Om *Listeria monocytogenes'* resistens mot koksalt och värmeinverkan vid *in vitro* försök samt om experimentellt framkallad monocytos hos vita möss. **[Resistence of *Erysipelothrix monocytogenes* to heat and to sodium chloride. Experimental infection of mice.]**—*Nord. VetMed.* **7,** 853-868. [In Swedish. English and German summaries.] **729**

Ten strains of *E. monocytogenes* isolated from farm animals and fowls remained virulent after storage for 12 months in 6% NaCl with 1% glucose. Higher concentrations of NaCl reduced viability. Ordinary salting of infected foods did not kill *E. monocytogenes.* The resistance to high NaCl content is of value for differential diagnosis. Heating of milk at 73°–75°C. for 10–30 sec. did not kill the organism. In mice inoculated with a culture of *E. monocytogenes,* the monocytes increased by up to 5·1% after 5 days, and the neutrophile granulocytes by 7·0%.
—F. R. Paulsen.

Glabashki, S. (1955). **[Life span of *E. rhusiopathiae* in carcasses.]**—*Vet. Glasn.* **9,** 354-356. [In Serbian. English summary.] **730**

E. rhusiopathiae remained viable for 3–4 months in pig and mouse carcasses buried 5–7 ft. deep, for 5 months in carcasses left to decay on the surface and for at least 10 months and probably longer in carcasses kept in a refrigerator.—E.G.

Bain, R. V. S. (1955). **Studies on haemorrhagic septicaemia of cattle. IV. A preliminary examination of the antigens of *Pasteurella multocida* Type I.**—*Brit. vet. J.* **111,** 492-498. [Author's summary modified.] **731**

A protein-complex fraction has been isolated from the capsules of *Past. septica* Type I along with variable quantities of polysaccharide. The protein antigen is grossly similar to fractions extracted from *Past. pestis.* For mice it is a potent antigen conferring active immunity in small doses. Adsorption of rabbit antiserum with this anti-

gen abolished the protective power of the antiserum against challenge with virulent whole bacilli. It acts as a complement-fixing antigen with cattle sera. The yield from "Phase I" (F) and "non-Phase I" (Intermediate) is similar, but there are differences in the yield of polysaccharides.

VANCHESWARA IYER, S., GOPALAKRISHNAN, K. S. & RAMANI, K. (1955). **Studies on haemorrhagic septicaemia vaccines. The effect of adjuvants upon the immunizing value of formalin-killed *Pasteurella boviseptica* organisms.**—*Indian vet. J.* **31,** 379-391. **732**

In tests mainly on buffalo calves, adjuvant vaccines containing mineral oil and lanolin were found to confer stronger immunity than a killed broth culture containing 1% potassium alum, and the latter conferred a better and more lasting immunity than the killed culture without the alum. The alum vaccine, however, could be prepared and injected much more easily than the oily vaccines, which were difficult to prepare and inject and necessitated costly manufacturing equipment.

—R. N. MOHAN.

GUALANDI, G. L. (1955). Contributo allo studio eziologico della polisierosite fibrinosa dei suinetti. **[The aetiology of Glässer's disease of pigs.]**—*Vet. ital.* **6,** 891-898. [English, French and German summaries.] **733**

Seven typical cases of serositis and fibrinous polyarthritis in piglets were seen by the author. *Haemophilus suis* was isolated in broth mixed with broth culture filtrate of *Staph. albus*. Cultures were preserved by freeze-drying. Attempts to transmit the disease to healthy piglets by intravenous inoculation were unsuccessful.

—I. W. JENNINGS.

GLANTZ, P. J. & DUNNE, H. W. (1955). **Isolation of anaerogenic *E. coli* O26: B6 serotype from a case of calf scours.**—*Science.* **121,** 902. **734**

A report of the isolation of anaerogenic *Bact. coli* serological type O26 : B6 from the ileum of a calf that died from scours. The culture produced fatal scours in 3 young calves, when fed to them by mouth. The strain was identical biochemically and serologically with the anaerogenic Type 3 described by Ørskov [*V.B.* **22,** 2388] and is believed to be the first reported in calves outside of Europe.—W. R. BETT.

FORTUSHNUI, V. A. (1955). **[Biomycin and levomycetin in salmonellosis and *Bact. coli* infection of calves.]**—*Veterinariya, Moscow.* **32,** No. 2, pp. 36-38. [In Russian.] **735**

In 68 cases of salmonella infection of calves biomycin in watery suspension was introduced into the stomach, 2·5–3·5 million units being given in all, over 5–6 days. Levomycetin was given in a similar way to 126 calves with salmonella infection, 303 with *Bact. coli* infection and also prophylactically during their first two days to 80 calves born on farms where the latter infection was endemic. Both antibiotics were very effective; all treated animals recovered and even very sick animals quickly returned to normal, usually by the second day of treatment.—A. MAYR-HARTING.

KUPKIN, S. A. (1955). **[Prophylaxis and treatment of calf diseases with maternal blood.]** *Veterinariya, Moscow.* **32,** No. 2, pp. 38-42. [In Russian.] **736**

Calves that were given a subcutaneous injection of maternal blood (75–100 ml., with 0·5% sodium citrate) on their first day of life, followed a few days later by a formolized vaccine, were much better protected against salmonella and *Bact. coli* infections than calves prophylactically treated with the usual immune serum. Even better results were obtained when the dam had been vaccinated with the salmonella vaccine 1–1·5 months before calving. Maternal blood was also effective therapeutically in both of these infections, particularly in conjunction with chemotherapy but it was ineffective in digestive disturbance due to vitamin A deficiency.

—A. MAYR-HARTING.

BRUNER, D. W., PANCIERA, R. & BENTINCK-SMITH, J. (1955). **A paracolon microorganism possessing *Salmonella* H antigens and isolated from a sheep.**—*Cornell Vet.* **45,** 465-468. [Abst. from authors' summary.] **737**

A paracolon organism that possessed *Salmonella* H antigens 1, 3, 5, (7) was isolated from the duodenum of a diseased ewe. It was dulcitol-negative and fermented lactose. Its role in producing disease was not determined.

POHL, G. (1955). Über das Vorkommen von Salmonellen im strömenden Blute bei Rindern. **[Occurrence of salmonella in the bovine bloodstream.]** — *Mh. Vet. Med.* **10,** 30-32. **738**

Salmonella dublin was isolated from 28 out of 4,700 blood samples from 2,700 cattle on 106 farms, most of them infected with salmonella; *S. enteritidis* was isolated 9 times,

S. paratyphi B thrice and *S. anatum* once. In addition, *S. dublin* was isolated from one out of 2,851 blood samples submitted for examination for brucella. Blood culture was unsuitable for the early diagnosis of infection, when compared with the results of serological tests. —R.M.

ENDREJAT, E. (1955). Über den Salmonellaabort der Schafe. [*S. abortus-ovis* **infection in sheep.**]—*Dtsch. tierärztl. Wschr.* **62,** 233-236. **739**

S. abortus-ovis was isolated from 160 of 257 aborted sheep foetuses. Ovine virus abortion together with *S. abortus-ovis* was present in six flocks and in one flock there was mixed *Brucella—S. abortus-ovis* infection.

Immunization experiments were carried out in 45 infected flocks, using vaccines prepared from stock strains for the first vaccination, and from the specific flock strain for the second vaccination, 10–14 days later.

In 24 flocks abortions stopped either a few days after the first, or, at the latest, 3–4 days after the second vaccination. In the remaining 21 flocks, however, the abortion rate per flock varied from under 10% to 55%. —E.G.

SCHÜRMANN, E. (1955). Serologische Diagnose der Kükenruhr bei 4 Tage alten Küken. **[Serological diagnosis of** *S. pullorum* **infection in chicks aged 4 days.]**—*Dtsch. tierärztl. Wschr.* **62,** 313-314. **740**

In an experiment involving 230 chicks hatched from eggs laid by hens infected with *S. pullorum,* S. demonstrated the possibility of obtaining positive agglutination reactions in 4-day-old chicks. The majority of positive reactions occurred between the 7th and 10th days of life. He drew attention to the economic importance of eliminating all positive reactors at the earliest possible age and concluded that large-scale tests would be called for to determine the most practicable age at which blood tests on chicks could be carried out.—F. K. LEEB.

HARBOURNE, J. F. & SELLERS, K. C. (1955). **Observations on the value of furazolidone in the treatment of field outbreaks of fowl typhoid (***Salmonella gallinarium* **infection) in the domestic fowl.**—*Vet. Rec.* **67,** 799-801. **741**

On 11 infected poultry-farms furazolidone was administered in the food at a concentration of 0·02% for 6 days, and on 4 farms a conc. of 0·04% was given for 10 days. The mean percentage of birds dying daily in treated groups was 2·04%, and in untreated groups 4·88%. Results were insufficient to determine effects of the two concentrations of the drug.

Within 10 days of the completion of each trial, blood samples from all treated and control birds were tested. There was little difference between the percentages of reactors in the treated and untreated groups.—M.G.G.

GEURDEN, L. M. G. & DEVOS, A. (1955). Salmonella new-brunswick-infectie bij kuikens. [*Salmonella new brunswick* **infection in chickens.**]—*Vlaam. diergeneesk. Tijdschr.* **24,** 161-165. [English, French and German summaries.] **742**

A motile *Salmonella* having the antigenic formula III, XV, e, v, 1, 7, was isolated from 14-day-old chicks suspected to have died from *S. pullorum* infection. The authors concluded that it was *S. new brunswick.* Investigation revealed that the original breeding stock had been imported from the U.S.A., but it was not possible to examine these fowls serologically. Attempts to transmit the infection to healthy chicks, orally and by intramuscular inoculation, yielded negative results. —C. A. VAN DORSSEN.

ROMVÁRY, J. (1955). A szarvasmarhák brucellosisos fertózöttségének felismerése a hüvelyváladék vizsgálatával. **[Examination of vaginal mucus for the diagnosis of brucellosis in cattle.]**—*Mag. állator. Lapja.* **10,** 253-258. [In Hungarian. English and Russian summaries. Abst. from English summary.] **743**

The vaginal secretions of 270 cows from 4 infected herds and one herd free from infection were investigated by agglutination and complement-fixation techniques. Milk, milk whey and blood serum of the same animals were also investigated. Cows with positive serum, milk and milk whey tests, whose vaginal secretions, taken before or after parturition, yielded negative results, did not abort. Before and after abortion caused by brucellosis, antibodies were demonstrated in the vaginal mucus. In such cases infertility was also observed. Cows, in whose vaginal secretions the quantity of antibodies decreased, became pregnant again and had a normal gestation.—M.G.G.

ROMVÁRY, J. (1954). A Brucella típusainak és a Br. 19-es törzseknek elkülönítése mesterséges tenyésztótalajokon. **[Differentiation**

between organisms of the *Brucella* group and Strain 19 on synthetic media.]—*Mag. állator. Lapja.* **9,** 327-330. [English and Russian summaries. Abst. from summaries.] **744**

R. described differentiation by dye-resistance of the three brucella types, and of strains within these types. He used either methylene blue, safranin or congo red in media containing 1% glucose and lauryl sulphonate. There was a marked difference in dye-resistance in eight Strain 19 cultures from various countries.—E.G.

Bergmann, J. (1955). Beitrag zur Frage der Prüfung und Anwendung gefriergetrockneter *Brucella-abortus*-Impfstoffe (Stamm "Buck 19"). [**Testing and method of use of freeze-dried *Br. abortus* Strain 19 vaccine.**]—*Schweiz. Arch. Tierheilk.* **97,** 72-85. [English, French and Italian summaries.] **745**

B. discussed advantages of freeze-dried over liquid Strain 19 vaccine. He described procedures for determining the number of live *Br. abortus* (by means of a dilution technique), for testing the diluent in which the bacteria are suspended during freeze-drying, for evaluating the stability of freeze-dried vaccine, and for testing the vacuum in sealed ampoules.—R.M.

Dzerzhinski, A. Y. (1955). [**Glycerol in the preparation of live brucella vaccine.**]—*Veterinariya, Moscow.* **32,** No. 2. pp. 76-81. [In Russian.] **746**

Fifteen to 20% glycerol in normal saline soln. was found to be an excellent vehicle for a live brucella vaccine. The organisms remained viable for almost 2 years and were stable, even if exposed to severe frost and shaking in transport. A thousand sheep were vaccinated and agglutination reaction and complement-fixation tests carried out after 21, 45 and 90 days, and after 11 months. The highest agglutination titre was obtained after 21 days, when 84% of the animals had titres of 1 : 100–1 : 400. After 11 months only 3% had a titre of 1 : 100 or more, 20% had lower titres, the rest were negative. The c.f. test remained positive longer. Only very few vaccinated animals gave an allergic skin reaction. D. suggested that this could be used to distinguish between naturally infected and vaccinated animals. Although no difference in the effectiveness of fresh and of year-old vaccine could be found by immunological reactions or by challenging non-pregnant animals, challenge of pregnant sheep, 5 months after vaccination, showed fresh vaccine to be 100% effective, whereas 10% abortions occurred amongst the sheep vaccinated with old vaccine. No abortions occurred among 250 healthy unvaccinated sheep kept together with the vaccinated animals and the serological reactions of the former were negative throughout; the danger of a spread of infection through the use of live vaccine would appear to be negligible.—A. Mayr-Harting.

Hess, E. (1954). Die therapeutische Beeinflussung des Rinderabortus Bang. [**Treatment of *Br. abortus* infection in cattle.**]—*Schweiz. Arch. Tierheilk.* **96,** 583-588. [English, French and Italian summaries.] **747**

Cattle infected with *Br. abortus* and excreting the organism in their milk were used in chemotherapeutic trials of various drugs. None of the drugs tested had a lasting effect, althought treatment with chloramphenicol, alone or in conjunction with sulphadimidine was followed by transitory reduction in the excretion of the organism in the milk. No inhibition zones were demonstrable in cultures of *Staph. aureus* and *Br. abortus* to which had been added samples of secretion withdrawn from the affected quarters during the period of treatment, and the chloramphenicol sensitivity of brucella strains isolated from the udder was unimpaired by treatment.

—W. G. Siller.

Hoerlein, A. B., Hubbard, E. D., Leith, T. S. & Biester, H. E. (1954). **Swine brucellosis.** pp. 56. Ames, Iowa: Veterinary Medical Research Institute, Iowa State College. **748**

A summary of research work on porcine brucellosis carried out during the past 6 years at the Veterinary Medical Research Institute, Iowa State Collage, with a list of references. The authors discussed the control of the disease in ordinary and in breeding herds, the pathogenesis of *Br. melitensis* and *Br. suis* infection in pigs, vaccination of pigs with *Br. abortus* Strain 19 vaccine, and the differentiation of specific and non-specific agglutination test titres.—R.M.

León, A. P. & Cano, C. (1954). Inmunidad inducida contra *Brucella.* Protección activa y pasiva del ratón blanco con gérmenes formolados contra la infección experimental por *Br. melitensis.* [**Induced immunity to *Brucella.* Active and passive protection of white mice against *Br. melitensis* by means**

of formolized cultures.]—*Rev. Inst. Salubr. Enferm. trop., Méx.* **14,** 189-196. [Abst. from English summary.] **749**

Active immunization of mice with 4 doses of a formolized vaccine protected 90% against death and 42% against chronic infection when challenged with 5 LD_{50}. Passive immunization with 0·3 ml. of serum from rabbits or g. pigs immunized with 4 doses of the vaccine protected 100 and 90% of mice, respectively.—M.G.G.

TOSHACH, S. R. (1955). *Brucella melitensis* **in the North West Territories.**—*Canad. J. publ. Hlth.* **46,** 155-157. **750**

The isolation of two strains of *Brucella* in Eskimos is described. Bone marrow was seeded on liver agar slopes and incubated in 10% CO_2 for initial isolation. The isolates were studied and it was concluded that the organisms were *Br. melitensis*. The isolation of *Br. melitensis* in Canada is unusual and it is speculated that reindeer or caribou may be possible reservoirs.—A. S. GREIG.

RENOUX, G. & AMARASINGHE, A. (1955). Actions des sérums monospécifiques sur des mélanges de *Br. abortus* et *Br. melitensis*. **[Action of monospecific sera on mixtures of** *Br. abortus* **and** *Br. melitensis*.]—*C. R. Acad. Sci., Paris.* **240,** 1948-1950. **751**

From the results of agglutination tests employing mixtures of different proportions of *Br. abortus* and *Br. melitensis* with either *Br. abortus* or *Br. melitensis* specific antiserum, the authors concluded that it was not possible to detect contamination of a culture of one species with a small proportion of the other.—R.M.

CRUICKSHANK, J. C. (1955). **Sodium diethyldithiocarbamate and oxine in the differentiation of brucella species.** — *J. Hyg., Camb.* **53,** 305-312. [Author's summary slightly modified.] **752**

The effect of two chelating agents, sodium diethyldithiocarbamate and 8-hydroxyquinoline (oxine), on 70 strains of brucella (24 *Br. abortus*, 22 *Br. melitensis* and 28 *Br. suis*) was examined. The pattern of growth and inhibition of the three species as it appeared in the carbamate test described by Renoux was of some value in the differentiation of species. *Br. suis* was more resistant to carbamate than the other two species. The three species also differed in their sensitivity to oxine, and strains of *Br. suis* from various sources were consistently more resistant than the other species.

BONADUCE, A. & ORLANDELLA, V. (1955). Ricerche sull'attività ureasica delle brucelle. **[Urease activity of brucella.]**—*G. Batt. Immun.* **48,** 123-133. [English, French and German summaries.] **753**

The authors found no significant difference in the hydrolysis of urea by *Br. melitensis* and *Br. abortus*, but *Br. suis* acted more swiftly. No distinction could be made between the urease activities of typical and atypical, or 'S' and 'R' strains of the three species.
—I. W. JENNINGS.

ROSSI, P. & KOLOCHINE-ERBER. (1955). Encéphaloses équines et leptospiroses. **[The relationship of leptospira to encephalitis in horses.**—*Bull. Acad. vét. Fr.* **28,** 257-263. **754**

A report on a fatal case of leptospirosis in a 2-year-old horse. The signs were those of meningo-encephalitis and jaundice. *L. icterohaemorrhagiae* was isolated from the c.s.f.—I. W. JENNINGS.

VAN RIEL, J. & VAN RIEL, M. (1955). Recherches sur la leptospirose bovine en Afrique centrale. **[Research on bovine leptospirosis in Central Africa.]**—*Ann. Soc. belge Méd. trop.* **35,** 251-261. [English and Flemish summaries.] **755**

The agglutination lysis test for leptospirosis revealed evidence of latent infection in 42 out of 124 cattle tested in the Belgian Congo and Ruanda-Urundi. In order of frequency the antigens concerned were *L. grippo-typhosa, L. bataviae*, members of the *icterohaemorrhagiae* group, the *hebdomadis* group, *L. australis A, L. pomona* and *L. butembo*.—I. W. JENNINGS.

WANNAN, J. S. (1955). **Rapid slide agglutination by leptospiral antibodies.**—*Med. J. Aust.* July 30th, 161-164. **756**

W. described a simple and rapid slide agglutination method. A drop scheme for dilution of serum 1 : 15 to 1 : 50,000 is illustrated. Thin, "dark-ground" slides are divided by grease pencil into convenient squares, and a platinum loop, approx. 2 mm. in diameter, is used for transferring dilute serum and leptospiral suspension to the slide. The relatively short incubation period (30 min. at room temp.) enables tests to be performed

continuously. There was close agreement (72–92%) with the conventional plate method. —R. D. Barry.

Kemenes, F. & Széky, A. (1955). Adatok a hazai szarvasmarhaleptospirosis járványtanához. [**Bovine leptospirosis in Hungary.**]—*Mag. állator. Lapja.* **10,** 297-302. [English and Russian summaries. Abst. from English summary.] **757**

Using the silver impregation method, leptospires were found in the kidneys of 10 calves killed 1½–3 months after natural infection. In 5 calves killed 4–5 months after infection only degenerate residual leptospires could be demonstrated, without isolation.

Artificially infected unweaned mice died within a few days, but adult mice were resistant. Pigs reacted with fever 4–5 days after infection and excreted leptospires in the urine for 6 weeks.—M.G.G.

Csontos, J., Kemenes, F. & Romváry, J. (1955). Elvetélés kocaállományban leptospirosis következtében. [**Leptospiral abortion in pigs.**]—*Mag. állator. Lapja.* **10,** 303-304. [English and Russian summaries. Abst. from English summary.] **758**

Four to 90 days after abortions had occurred amongst sows, strains of leptospira were isolated from the urine of six. There were no symptoms other than the abortions. With one exception, the strains were identical with the bovine strain isolated in Hungary. —M.G.G.

Morse, E. V. & Morter, R. L. (1955). **Protection afforded guinea pigs by porcine gamma globulin against *Leptospira pomona* infection.**—*Cornell Vet.* **45,** 520-525. [Abst. from authors' summary.] **759**

G. pigs obtained protection against *L. pomona* challenge from the i/p administration of porcine γ-globulin which contains antibodies for this serological type. Globulin administered before or during exposure to *L. pomona* protected 80–90% of the animals, but only 50% when administered on the day following exposure. The possible value of leptospiral immune globulin injection was discussed.

Otten, E., Henze, S. & Goethe, H. (1954). Leptospiren-Infektionen bei der Hauskatze. [*Leptospira* **infection in the domestic cat.**]—*Z. Tropenmed. u. Parasit.* **5,** 187-204. [English summary.] **760**

An account of serological examination of 236 cats from the Hamburg dock area, where rat leptospirosis is common. None of these cats yielded a positive complement fixation reaction. Of 86, which were in addition examined by the agglutination test, 8 yielded titres of 1 : 10 – 1 : 100.

Experimental infection of 21 cats with *L. icterohaemorrhagiae* and *L. canicola* failed to produce clinical symptoms, but the blood picture and P.M. findings in organs were in accordance with leptospirosis. Leptospires were isolated from liver and kidney, but transmission to g. pigs and hamsters using this material, failed. The authors concluded that cats may be resistant to natural leptospirosis and discussed the role of cats as possible carriers.—E.G.

Gleiser, C. A., Jahnes, W. & Byrne, R. J. (1955). **Avian leptospirosis: studies on chick-embryo culture.**—*Cornell Vet.* **45,** 296-304. [Authors' summary modified.] **761**

When 17-day-old embryonated White Leghorn hens' eggs are inoculated with cultures of leptospira organisms of certain serological types, the newly hatched chicks develop a clinically recognizable disease, and the organism can be readily observed in the circulating blood. The use of chick embryos may be of value for the isolation of pathogenic *Leptospira* from blood, urine, or tissue suspensions.

Lowbury, E. J. L. & Lilly, H. A. (1955). **A selective plate medium for *Cl. welchii*.**—*J. Path. Bact.* **70,** 105-109. [Authors' summary slightly modified.] **762**

The inclusion of neomycin (100 μg./ml.) in 20% serum agar provides a Nagler medium selective for *Cl. welchii* Type A and inhibitory towards a wide range of bacteria, some of which may cause a false positive Nagler reaction. A comparison of the medium with the ordinary Nagler plate medium in a study of the flora of burns showed that *Cl. welchii* could be isolated more often on the selective medium. The selective Nagler medium was found useful in obtaining counts of presumptive *Cl. welchii* Type A in air.

Macfarlane, M. G. (1955). *Clostridium oedematiens* **λ-antigen, an enzyme decomposing tropomyosin.**—*Biochem. J.* **61,** 308-315. **763**

A sulphydryl activated enzyme, tropomyosinase, was found in the crude toxins of *Cl. oedematiens* Type B and of *Cl. haemolyticum.* The properties of this specific antigen are reported.—John Seamer.

Rodríguez Loustau, J. A. (1955). Reconocimiento de antitoxina tetánica en el suero de bovinos normales. [**Tetanus antitoxin in the serum of healthy cattle.**]—*Gac. vet. B. Aires.* **17,** 77-87. **764**

The serum of 100 healthy ranch cattle was examined for tetanus antitoxin. In 15 animals the content per ml. was 1/500-2 antitoxic units (A.U.) and in the rest it was below 1/500 A.U. In animals under 2 years it did not exceed 1/100 A.U. It was observed that antitoxin was more commonly found in the serum of animals from large herds and from (reputed) tetanus-infected areas.—T.E.G.R.

Scheibner, G. (1955). Zum Botulismus beim Nerz in Deutschland. [**Botulism in mink in Germany.**]—*Mh. Tierheilk.* **7,** 195-203. **765**

S. described the symptoms and P.M. lesions of botulism in mink, and how to demonstrate the presence of the toxin. He tested the four types of toxin on mink. Types A and B had no effect. Type C was lethal. Type D produced symptoms, but the animals recovered. He then prepared an antitoxin against Type C. A single s/c dose of 1 ml. or 0·5 ml. conferred immunity which was effective a year later.—M.G.G.

Larsen, A. E., Nicholes, P. S. & Gebhardt, L. P. (1955). **Successful immunization of mink with a toxoid against *Clostridium botulinum*, type C.**—*Amer. J. vet. Res.* **16,** 573-575. [Authors' summary modified.] **766**

Toxin of *Cl. botulinum,* Type C, was prepared by growing the organism in physiological saline in cellophane bags immersed in a maize steep liquor medium. High yields of toxin were obtained. Formolized, alum-precipitated toxoid was prepared from toxin and used for the immunization of 56 mink. Challenge of immunized and control mink revealed that immunized animals were completely protected against doses of toxin which killed all controls within 36 hours.

Lamanna, C., Jensen, W. I. & Bross, I. D. J. (1955). **Body weight as a factor in the response of mice to botulinal toxins.**—*Amer. J. Hyg.* **62,** 21-28. **767**

The LD_{50} of Type C toxin for white mice was affected by neither sex nor age. The time of death was shortest for small males, while with Type B toxin small males took longer to die than larger males and small females took the longest time. With Type A toxin neither sex nor age affected the time of death.

—A. Seaman.

Scheibner, G. (1955). Der Einfluss von Ultraschallwellen auf das Botulinustoxin. [**Effect of ultrasonic waves on *Clostridium botulinum* toxin.**]—*Tierärztl. Umsch.* **10,** 364-366. **768**

S. studied the detoxicating action of ultrasonic waves on botulinus toxins. Various dilutions of Type A and Type C toxin were exposed individually to ultrasonic waves at 800 kc/sec. and a field intensity of 2·42 W/cm². Exposure for one hour of Type A toxin resulted in a lowering of toxicity to one-tenth of the initial value, while Type C toxin was unaffected.—F. K. Leeb.

Lagerlöf, N. (1955). Untersuchungen über die Vibrio foetus-Infektion als Ursache temporärer Unfruchtbarkeit des Rindes in Schweden. [*Vibrio fetus* **infection as a cause of temporary infertility in cattle in Sweden.**]—*Fortpflanzung.* **5,** 109-111. **769**

From the years 1951-5 about 400 herds comprising 8,000 cattle were tested for *V. fetus* infection by means of the vaginal mucus agglutination test. In all, about 20,000 serological tests were made, using 3 different antigens. It was found that herds could be divided into 3 groups;— those free from disease or with only a few positive reactors, those actively infected, and those in which the majority of the animals were positive reactors but had acquired immunity.—M.G.G.

Blanco Loizelier, A., García Ferrero, J. L. & G-Ochoa Juanes, J. (1955). Aborto vibriónico en la oveja. [**Vibrionic abortion in ewes in Spain.**]—*Rev. Patron. Biol. anim.* **1,** 267-276. [French summary.] **770**

The authors demonstrated vibrionic abortion in sheep for the first time in Spain. Out of 347 pregnant sheep, 80 aborted. The placenta was usually retained. *V. fetus* was isolated from the contents of the stomach and small intestine, and from the heart and gall-bladder of the foetuses. G. pigs in an advanced stage of gestation, injected i/p with pure cultures of the bacillus, aborted after 24–72 hours.—M.G.G.

Widik, R. W. & Hlidar, G. E. (1955). Untersuchungen über die antigene Struktur von *Vibrio fetus* vom Rind. Das Kapsel- oder K-Antigen von *Vibrio fetus.* [**Studies on the antigenic structure of *Vibrio fetus*. The capsular or "K" antigen.**]—*Zbl. VetMed.* **2,** 238-250. [English, French and Spanish summaries.] **771**

Five strains of *V. fetus* used for producing formolized whole-antigens contained a

heat-labile flocculating fraction 'H' and a heat-stable granulating fraction 'O'. All strains contained a previously unknown capsular or 'K' antigen, capable of inhibiting O-agglutination of live or formolized cultures in homologous O-serum. Its presence in cultures could be controlled by K-agglutination with undiluted K-serum, performed in the slide test; K-agglutination with diluted K-serum, performed in the tube test; the Quellung reaction; or by capsular staining. The most important criteria for the presence of K-antigen in *V. fetus* are inagglutinability of live cultures in homologous O-serum and agglutinability in K-serum prepared with live or formolized cultures.—W. R. Bett.

Rolle, M. & Mundt, W. (1955). Die Züchtung von Vibrio foetus, Spirillum suis und ähnlichen Mikroorganismen. **[The cultivation of *Vibrio fetus*, *Spirillum suis* and similar organisms.]** — *Zbl. VetMed.* **2,** 451-458. [English, French and Spanish summaries.] **772**

All the strains examined grow well under aerobic conditions in ox heart broth containing sodium thioglycollate. *V. fetus* can be differentiated from similar organisms by the use of sodium thioglycollate broth containing 0·1% urea. *Spirillum suis* grows well on solid media where it produces a reddish-brown pigment. *V. fetus* infection in cattle is always transmitted by coitus.—W. R. Bett.

Selinanov, A. V. (1955). **[Effect of management and feeding of sheep on the incidence of foot rot.]**—*Veterinariya, Moscow.* **32,** No. 2, p. 61-65. [In Russian.] **773**

Three groups of sheep were kept under different conditions of feeding and housing. The sheep of group III, whose diet was deficient in carotene, calcium and phosphorus, and that were kept in dark damp sheds, showed a low calcium and phosphorus level in the serum, became anaemic, and the horn of their hooves was in a bad condition, thin and brittle. The vitamin A content in the liver of lambs born to such ewes was very low. One sheep affected with foot rot was introduced into each group. A few weeks later, 4 sheep and a lamb fell ill in group III; 2 sheep and 3 lambs remained free. No transmission occurred in the other groups. Exudate from 2 cases of foot rot was rubbed into the scarified skin of the cleft of the hoof of a healthy animal, which developed typical foot rot. Pure cultures of *Fusiformis nodosus*, recently isolated or up to one year old, did not cause the disease. A filtrate of foot rot exudate was also inactive.—A. Mayr-Harting.

Bergmann, J. (1955). Versuche mit einem gefriergetrockneten Kombinations-Impfstoff gegen Abortus Bang ("Buck 19"), Rauschbrand und Pararauschbrand ("Biga"). **[Experiments with a freeze-dried combined vaccine against *Br. abortus*, *Clostridium septicum* and *Cl. chauvoei* infections in cattle.]**—*Schweiz. Arch. Tierheilk.* **97,** 137-143. [English, French and Italian summaries.] **774**

A combined freeze-dried vaccine containing live Strain 19 *Br. abortus* and formolized *Cl. septicum—Cl. chauvoei* vaccine was more potent against blackleg in g. pigs than the formol vaccine alone. It yielded satisfactory titres against *Br. abortus* in g. pigs and cattle. The formaldehyde in the clostridial vaccine was inactivated by conversion into paraformaldehyde during the freeze-drying process; it did not kill the brucella either in the dried or in the re-dissolved state. B. suggested that the combined vaccine would facilitate annual inoculation of cattle against these diseases.
—W. R. Bett.

Mayhew, C. J., Kuhn, U. S. G., Rust, J. H., Trum, B. F. & Woodward, J. M. (1955). **Bacterial permeation of the gut wall in irradiated burros.**—*Amer. J. vet. Res.* **16,** 525-528. [Authors' summary modified.] **775**

Donkeys were given total body irradiation at the rates of 25, 100, and 400 r per day until death. After irradiation at 25 r per day, micro-organisms commonly found in the intestines were found in the blood and internal organs. They were primarily *Proteus* and aerobic spore-forming organisms and, to a lesser extent, coliform organisms, *Pseudomonas*, *Bact. alkaligenes faecalis*, and a *Streptomyces* resembling *Streptomyces coelicolor*.

Chromobacterium prodigiosum, inoculated into the caecum of donkeys receiving 100 r per day, was found in the blood and internal organs. *In vitro* this organism was also able to traverse the intestinal wall of irradiated but not of non-irradiated donkeys.

In vivo and *in vitro* studies showed that in donkeys irradiated at the rate of 400 r per day, changes in the intestinal wall permitting micro-organisms to pass in great numbers did not occur before death at 9 days.

Metzger, W. I. & Prigot, A. (1955). **The effect of local antibiotic therapy upon the sur-**

vival of wound bacteria.—*Antiobiot. & Chemother.* **5**, 423-432. [Spanish summary pp. 458-459.] **776**

Chlortetracycline (aureomycin) was applied topically, mainly to ulcer and wound infections. Swabs of the wounds were cultured before and during treatment and the isolates tested for sensitivity to chlortetracycline. Most types of bacteria persisted in spite of an estimated concentration of 100–500 μg./ml. in the wound, although they were sensitive to this level *in vitro*. Most of the wounds healed quickly under this treatment and the incidence of infections was low.—A. SEAMAN.

FREI, W. & WITSCHARD, A. (1955). Zur Chemie der Bakterienwirkung im Gewebe. Einfluss von Bakteriengiften auf Enzyme von Mitochondrien. [**The chemical action of bacteria on tissues. Influence of bacterial toxins on mitochondrial enzymes.**]—*Zbl. VetMed.* **2**, 201-217. [English, French and Spanish summaries.] **777**

The action of bacterial toxins on the system of mitochondrial dehydrogenases in liver cells from g. pigs was studied, using methylene blue as an indicator of dehydrogenation. Toxins from haemolytic streptococci, *Bact. coli, Salmonella enteritidis, Erysipelothrix rhusiopathiae and Clostridium septicum* accelerated the dehydrogenation of hydrogen donors, while products derived from other bacteria *(Str. agalactiae, Past. septica)* slowed this process. This finding supported the hypothesis that, in the course of an infectious disease, tissue oxidation is influenced by substances of bacterial origin which act on the mitochondria of cells in the liver, and perhaps in other organs.

—F. R. PAULSEN.

CLEMENTS, F. E. & SHEAR, C. L. (1954). **The genera of fungi.** pp. iv+496. New York: Hafner Publishing Co. 2nd printing. **$15.00.** **778**

As a reference book, THE GENERA OF FUNGI, in its present form has served mycologists well for twenty-five years. It is a key to all the known genera of fungi and lichens, giving references to the descriptions of each genus in either Saccardo's SYLLOGE FUNGORUM or another authority, and also including a very large number of illustrations of typical species. It also gives a list of genera, authors, synonyms and type species and there is an extensive glossary and a bibliography.

The treatment of the pathogenic fungi is in keeping with the state of knowledge of these species in 1930 and hence only provides a reliable guide to the authors of the few genera mentioned. Since that time extensive revision of most groups of pathogens has been carried out and probably the main use of the book in the veterinary field is in the attempted assignment of unknown saprophytic moulds to their genera.—P. K. C. AUSTWICK.

MEYER, E. (1955). **The preservation of dermatophytes at sub-freezing temperatures.** *Mycologia.* **47**, 664-668. **779**

By suspending pieces of growth from cultures of dermatophytes in sterile human plasma and litmus milk and storing at –22° and –52°C., 58 out of 61 isolates of 12 species were still viable after a 2-year period. No morphological changes occurred.

—P. K. C. AUSTWICK.

NEWING, C. R. (1955). **An improved method for the preparation of an antigen for the rapid slide test for contagious bovine pleuropneumonia.**—*Brit. vet. J.* **111**, 378-384. **780**

By aerating the culture medium the yield could be roughly trebled. Although the addition to the medium of a surface-active agent controlled frothing in the culture flasks and thereby made it possible to increase the rate of aeration, it interfered with the specificity of the antigen. N. described a modified method for the preparation of an antigen for use in the rapid slide test.—F.E.W.

KUJUMGIEV, I. (1955). Sulla durata della vitalità e della virulenza del *Micromyces agalactiae* in colture abituali o liofilizzate. [**Viability and virulence of freeze-dried organisms of contagious agalactia.**]—*Vet. ital.* **6**, 913-918. [English, French and German summaries.] **781**

The organism of contagious agalactia survived 28 days in serum lactose broth under liquid paraffin at 37°C.; 53 days in serum lactose agar at 37°C. Freeze-dried culture lasted 3 years, and the virulence at the 754th day was found to be unchanged. Six months' culture in normal media attenuated the organism.—I. W. JENNINGS.

See also abstr. **856-857** (nature of viruses and bacteria); **942** (strangles); **952** (Past. septica antibodies in experimental porcine rhinitis); **1068** (report, Mukteswar Vet. Res. Inst.); **1069-1071** and **1083** (books, bacteriology).

DISEASES CAUSED BY PROTOZOAN PARASITES

KUDO, R. R. [Professor of Zoology, The University of Illinois, Urbana, Illinois.] (1954). **Protozoology.** pp. xi + 966. Springfield, Ill.: Charles C. Thomas; (Oxford: Blackwell Scientific Publications, Ltd.) 4th Edit. 77s. 6d. **782**

This book is introduced as "A comprehensive textbook, a laboratory manual and a reference book on the common and representative genera of all groups of both free-living and parasitic protozoa". This is a wide claim, which on the whole is adequately met.

The first section is devoted to the general biology of the phylum and the major part of the work is devoted to taxonomy and special biology of the various systematic groups. There is also a short chapter devoted to special techniques of staining and cultivation. The style is concise, making it easy to find the numerous references. There are a number of photographs and many excellent drawings. The index is adequate and well arranged.

—L. P. JOYNER.

HEIRMAN, A. L. J. M. (1955). Twee uitbraken van trypanosomiasis op een veebedrijf in Panama. **[Outbreaks of trypanosomiasis in horses and cattle in Panama.]**—*Tijdschr. Diergeneesk.* **80,** 858-862. [English and Spanish summaries.] **783**

A brief account of *Trypanosoma vivax* infection in cattle and *T. hippicum* infection in horses in Panama. In the author's experience, abscesses often developed from the swellings which result from the s/c injection of antrycide (quinapyramine). This was obviated by injecting i/m and by using a 5% soln. instead of a 10% soln. In horses, this treatment was preferred to the use of suramin.

—C. A. VAN DORSSEN.

FAIRBAIRN, H. & WATSON, H. J. C. (1955). **The transmission of *Trypanosoma vivax* by *Glossina palpalis*.**—*Ann. trop. Med. Parasit.* **49,** 250-259. **784**

The highest infection rates of *G. palpalis* by *T. vivax* were obtained when pupae were reared at 28°C. and the resultant flies maintained at 23°C. No transmissions resulted in flies maintained at 23°C. which had emerged from pupae kept at the same temp. The longer forms of trypanosomes had a greater infective power than the shorter forms. The authors correlated their results with those obtained in field cases.—JAS. G. O'SULLIVAN.

SEN, H. G., DUTTA, B. N. & RAY, H. N. (1955). **Effect of starvation on the course of experimentally induced *Trypanosoma evansi* infection in rats.**—*Indian J. vet. Sci.* **25,** 143-148. **785**

Starvation for a few days before and after inoculation with 5–10 million *T. evansi* did not affect the intensity of infection in young white rats.—R. N. MOHAN.

CVETANOVIĆ, V. (1955). O klinici i epizootiologiji leishmanioze psa u gradu i kotaru Dubrovnik. **[*Leishmania* infection in dogs in the Dubrovnik district of Yugoslavia.]**—*Veterinaria, Sarajevo.* **4,** 138-149. [In Croat. English summary.] **786**

Visceral leishmaniasis was present in 46 of 2,473 dogs examined in Dubrovnik during 1950–52. Age and breed appeared to have no influence on susceptibility. New infections occurred mainly during the October–March period. There was a significant drop in the incidence of canine infection after the destruction of infected dogs in 1950 and no new human cases were observed during 1951–52.

—E.G.

GÜNZLER, O. & RETTENMAIER, L. (1955). Die Silbernitratbehandlung trichomonaden-infizierter Zuchtbullen. Rückblick, gegenwärtiger Stand und Betrachtung als Teilproblem der Trichomonadenbekämpfung. **[Silver nitrate treatment of trichomoniasis in bulls.]**—*Tierärztl. Umsch.* **10,** 315-319. **787**

G. reported good results in trichomoniasis-infected bulls following the application, under local anaesthesia, of a 1 in 4 silver nitrate solution to the preputial membrane.

—M. L. CLARKE.

FRITZSCHE, K. (1955). Zur Therapie der Trichomoniasis der Tauben. **[Treatment of trichomoniasis in pigeons.]**—*Zbl. VetMed.* **2,** 392-407. [English, French and Spanish summaries.] **788**

D. described his technique of swabbing the crop of pigeons for the collection of material for diagnosis of trichomoniasis, and recommended a broth medium for cultural diagnosis. Of various drugs tested, the most effective was a solution of "enheptin" (45% aminonitrothiazole): given in the drinking water in a dilution of 0·125% for 6 days, it was well tolerated.—M. L. CLARKE.

I. Watanabe, M., Hamakawa, I., Iwata, A. & Henmi, S. (1953). **Trichocidin—a new antibiotics against protozoa produced by Penicillium in the culture media. I. Trichomonacidal action of trichocidin. II. Production of trichocidin in comparison with penicillin at different temperature of cultivation.** —*Exp. Rep. Govt exp. Sta. anim. Hyg., Tokyo*. No. 26. pp. 149-154 & 155-158. [In English.] **789**

II. Watanabe, M., Hamakawa, I., Iwata, A. & Henmi, S. (1953). **Trichocidin—a new antibiotics against protozoa produced by a Penicillium in the culture media. IV. Resistance of trichocidin against heat. V. Difference in stability of trichocidin and penicillin preserved at various temperature and pH.**—*Ibid.* pp. 163-164 & 165-167. [In English.] **790**

III. Watanabe, M., Iwata, A. & Henmi, S. (1953). **Trichocidin—a new antibiotic substance against protozoa produced by a Penicillium in the culture media. VI. Comparison of the production of penicillin and trichocidin among Penicillium strains. VII. Comparison in anti-protozoan and anti-bacterial actions of penicillin powder.**—*Ibid.* pp. 169-171 & 173-176. [In English.] **791**

IV. Watanabe, M., Iwata, A. & Henmi, S. (1953). **Trichocidin — a new antibiotics against protozoa produced by Penicillium in the culture media. X. Trypanocidal, trichomonacidal and trichomonastatic action *in vitro* of penicillin G. XI. Trypanocidal action *in vitro* of trichocidin.**—*Ibid.* pp. 191-197 & 199-206. [In English.] **792**

V. Watanabe, M., Yamauchi, M., Tsunekane, T., Tanabe, K., Morishima, S. & Moritaki, M. (1953). **Trichocidin — a new antibiotics against protozoa produced by Penicillium in the culture media. XIII. The results of field application of trichocidin.** —*Ibid.* pp. 217-221. [In English.] **793**

VI & VII. Watanabe, M. & Iwata, A. (1953). **Trichocidin—a new antibiotics against protozoa produced by a *Penicillium* in the culture media. VIII. Purifying of trichocidin. IX. Effects of penicillinase on penicillin and trichocidin.** — *Ibid.* pp. 177-181 & 183-189. [In English.] **794**

VIII. Watanabe, M., Oochi, T. & Iwata, A. (1953). **Trichocidin — a new antibiotics against protozoa produced by *Penicillium* in the culture media. XII. Again on trichomonastatic and trichomonacidal action *in vitro* of penicillin G.** — *Ibid.* pp. 207-216. [In English.] **795**

I.–V. The authors isolated a trichomonacidal substance from culture of certain strains of *Penicillium*, and named it trichocidin. The substance is produced in parallel to penicillin at various temperatures, but at 20°C. trichocidin alone was produced. In solution, it is less resistant to heat than penicillin but more stable against changes of pH. Differences in the yields of trichocidin by different strains of *Penicillium* were noted. Though in some field tests trichocidin yielded good results in the treatment of trichomoniasis of cows, the product was considered to be insufficiently stable as yet for practical use [see also *V.B.* **22,** 1668, 2038, 2789 and **23,** 856].

VI.–VII. The penicillin-purification method is not successful for the production of high potency trichocidin.

Penicillinase has scarcely any effect on trichocidin. It was, therefore, concluded that penicillin and trichocidin are entirely different compounds.

VIII. *Trichomonas foetus* fails to develop when the concentration of sodium chloride in the culture medium is raised from 0·5 to 5 or 10% or in the presence of 40,000 units/ml. penicillin; its development is checked to some extent in the presence of 10,000 units/ml. penicillin. The authors do not admit Cole's findings [*V.B.* **19,** p. 11] without reserve.—Kogi Saito.

Mangrum, J. F., Ferguson, T. M., Couch, J. R., Wills, F. K. & Delaplane, J. P. (1955). **The effectiveness of furazolidone in the control of hexamitiasis in turkey poults.**—*Poult. Sci.* **34,** 836-840. [Authors' summary modified.] **796**

Turkey poults were inoculated at 2 weeks of age with *H. meleagridis*. In the first experiment mortality was 66·6%, 17 days after inoculation and in the second 56·5%, 14 days after inoculation. Treatment with furazolidone (50 mg./lb.) 2 days before inoculation reduced mortality to 10%, and mortality in groups treated from the time of the first death after inoculation was 26·6%. Mortality was 11·1, 13·3, and 26·6% in 3 groups treated simultaneously with inoculation. Examination of intestinal contents revealed fewer organisms in the treated groups.

Cooper, D. M. & Skulski, G. (1955). **The effect of the continuous feeding of furazoli-**

done on the growth of gonads in single comb White Leghorn cockerels.—*Vet. Rec.* **67,** 541. **797**

Furazolidone fed at levels of 0·005 to 0·2% for 12 weeks to cockerels caused a reduction in the weight of the testes. Histological changes are described. The authors urge caution in the use of the drug for breeding stock.—Jas. G. O'Sullivan.

I. Rao, S. R. & Hiregaudar, L. S. (1953-1954). **Coccidial fauna of cattle in Bombay State with particular reference to a recent outbreak at Aarey Milk Colony, together with a description of two species,** *Eimeria bombayensis* **and** *Eimeria khurodensis.*—*Bombay Vet. Coll. Mag.* **4,** 24-28. **798**

II. Rao, S. R. & Hiregaudar, L. S. (1953-1954). **Coccidiosis in sheep and goats in Bombay State.**—*Ibid.* 29-33. **799**

I. In Bombay State coccidiosis in calves is regarded as a major problem. *Eimeria zurnii, E. smithi, E. cylindraica* and 2 new species *E. bombayensis* and *E. khurodensis* have been identified. Affected calves, 1–2 months old, recovered completely after treatment with sulphadimidine, an initial dose of 8–12 g. mixed in gruel followed by half the dose daily for 4–6 days.

II. In India the incidence of ovine and caprine coccidiosis is high and there are many subclinical infections. Acute outbreaks with severe enteritis, rapid progressive anaemia and death have been noted. *Eimeria faurei, E. parva, E. arloingi, E. ninae-kohl-yakimovi* and *E. intricata* have been recorded.

—S. Brian Kendall.

Herrich, C. A. (1954). **Twenty-five years of coccidiosis research.**—*Proc. N. Cent. St. Poult. Dis. Conf.* 1954. pp. 41-42. [Mimeographed.] **800**

Brief reference is made to a number of papers concerned with coccidiosis in poultry. It is interesting to note how few of the lines of research have since been extended.

—S. Brian Kendall.

Gill, B. S. (1955). **Observations on the relationship of thyroidal activity of chicks and 'caecal coccidiosis'** (*Eimeria tenella*).—*Indian J. vet. Sci.* **25,** 75-87. **801**

G. compared the effects of feeding mash unsupplemented, and supplemented respectively with thiouracil or with iodo-protein in sub-lethally and lethally infected chickens. Oocyst production was slightly depressed, but mortality highest, in the thiouracil-fed group; whereas oocyst production was the highest (and caecal lesions most severe), but mortality rate lowest, in the group fed iodo-protein.

—R. N. Mohan.

I. de Blieck, L., Bos, K. & Keidel, H. J. W. (1954). Chemotherapeutisch onderzoek bij blinde darm-coccidiosis van kuikens met nitrofurazone, sulphamezathine, sulfaquinoxaline en nitrophenide. [**Control of caecal coccidiosis in chickens with nitrofurazone sulphadimidine, sulphaquinoxaline, and nitrophenide.**]—*Tijdschr. Diergeneesk.* **79,** 323-326. [English, French and German summaries.] **802**

II. de Blieck, L., Kraneveld, F. C., Hoogendoorn, H. & Zwiep, N. (1954). Enkele verdere proeven over het curatief effect van nitrofurazone en sulfaquinoxaline bij *Eimeria tenella*-infectie. [**Curative effect of nitrofurazone and sulphaquinoxaline in** *Eimeria tenella* **infection in chickens.**]—*Ibid.* 327-332. [English, French and German summaries.] **803**

III. Kraneveld, F. C., de Blieck, L., de Man, T. & Zwiep, N. (1954). Nitrofurazone als prophylacticum tegen *Eimeria tenella*-coccidiosis. [**Nitrofurazone as a prophylactic against** *Eimeria tenella* **infection in chickens.**]—*Ibid.* 333-337. [English, French and German summaries.] **804**

I.—In groups of month-old chickens artificially infected with *Eimeria tenella* and treated with sulphadimidine and with nitrofurazone the morbidity rates were 28% and 10·3% respectively as compared with 42·3% in an untreated group. In another test using nitrophenide, nitrofurazone and sulphaquinoxaline the mortality rates, respectively, in the treated groups (morbidity rates not given) were 65%, 32%, and 2% as compared with 90% in untreated chickens.

II.—An artificial infection with *E. tenella* in 3-week-old chickens, which resulted in severe disease with 42% mortality, was controlled when groups were fed 48 hours after infection, for 7 days, a mash containing nitrofurazone in a conc. of 1 : 4,500. Sulphaquinoxaline was equally effective either given daily in a conc. of 0·06% in the mash for 7 days or with intermittent dosage.

III.—Groups each of 16 chickens were infected experimentally with sporulated oocysts of *E. tenella,* and given prophylactic treatment with nitrofurazone (0·0055% in the mash). Mortality figures (reported only as percentages) were respectively 12%, 6% and

0% in the treated groups as compared with 54%, and 68% and 80% in infected untreated control groups. A higher dosage (0·0382%) gave no better results.—C. A. VAN DORSSEN.

CUCKLER, A. C. & OTT, W. H. (1955). **Tolerance studies on sulfaquinoxaline in poultry.** —*Poult. Sci.* **34**, 867-879. **805**

As the result of laboratory experiments and observations under broiler house conditions it was concluded that sulphaquinoxaline was well tolerated by poultry. As much as 0·4% of the drug in the food was necessary in order to produce an appreciable increase in the clotting time of the blood. [Much of this work was concerned with concentrations of the drug which are much less than those usually considered necessary for the control of coccidiosis. The failure of a sulphonamide, except at excessively high concentrations, to affect the blood clotting time, is of unusual interest in view of previously published work]. —S. BRIAN KENDALL.

SLAVIN, D. (1955). *Cryptosporidium meleagridis* (sp. nov.)—*J. comp. Path.* **65**, 262-266. **806**

A parasite provisionally named *Cryptosporidium meleagridis* was found in enormous numbers on the epithelium of the terminal third of the small intestine of turkeys affected with diarrhoea. Studies of the life-cycle suggested that it did not differ essentially from that described by Tyzzer for *C. muris*. The characteristic formation of four sporozoites, lying freely in an oocyst, was not, however, observed. Fatal disease can apparently follow heavy infection with *C. meleagridis*, but it is not regarded as the likely cause of severe economic loss.—S. BRIAN KENDALL.

FABIANI, G. & ORFILA, J. (1955). Influence de la splénectomie sur le paludisme expérimental à *Plasmodium berghei* de la souris blanche. **[Influence of splenectomy on *Pl. berghei* infection in mice.]**—*C. R. Soc. Biol., Paris*. **149**, 87-90. **807**

In infected splenectomized mice parasitaemia arises more slowly than it does in intact controls. It decreases if splenectomy is performed during the course of the infection. This unexpected finding is due to the fact that the number of reticulocytes selectively parasitized falls, or at least does not rise, in splenectomized infected mice.—D. POYNTER.

DALY, G. D. & HALL, W. T. K. (1955). **A note on the susceptibility of British and some Zebu-type cattle to tick fever (babesiosis).**—*Aust. vet. J.* **31**, 152. **808**

The authors described the routine method used for the immunization of cattle against *Babesia bigemina* and *B. argentina*. The reactions during immunization of 17 zebu, 22 Santa Gertrudis, 7 Afrikander and 1,400 cattle of British breeds were summarized. The British breeds were considerably more susceptible to *B. argentina* than the zebu or Afrikanders; the susceptibility of the Santa Gertrudis varied between that of the British and other group. The reaction to *B. bigemina* was mild in all breeds.—A. E. PIERCE.

NEITZ, W. O., CANHAM, A. S. & KLUGE, E. B. (1955). **Corridor disease: a fatal form of bovine theileriosis encountered in Zululand.** —*J. S. Afr. vet. med. Ass.* **26**, 79-87. [Authors' summary and conclusion modified.] **809**

An account of an enzootic in cattle following tick infestation in the Corridor adjoining the Hluhluwe Game Reserve in Zululand.

During the three weeks of exposure the morbidity rate was 50%; of those affected more than 90% died.

The clinical and pathological changes in this disease have some resemblance to, but are not identical with, those observed either in East Coast fever or Tzaneen disease.

Examination of blood and organ smears revealed Koch bodies relatively smaller than those of *Theileria parva* and *Th. mutans*.

As prior to the enzootic cattle had not been maintained at the site, either buffaloes or other wild game probably served as reservoirs of the infectious agent.

The authors suggested that this disease be provisionally termed Corridor disease.

Rh. appendiculatus larvae and nymphae, reared from adults collected from *Th. mutans*-premune cattle reacting to Corridor disease, transmitted Tzaneen disease but not Corridor disease.

Corridor disease with a fatal termination was produced in four calves by means of adult *Rh. appendiculatus* ticks collected from the grass at and around the site of the enzootic.

Epidemiological and experimental observations suggest that cattle do not act as reservoirs for the infection of the vectors, but it is necessary to confirm this by critical experiments.

Comparative studies have shown that the *Theileria* sp. of Corridor disease is morpho-

logically identical with the *Theileria* sp. of "Buffalo disease" described in Southern Rhodesia by Lawrence (1940).

Further studies on this *Theileria* sp. are necessary to establish its species characteristics and status and its immunogenic features.

SANGER, V. L. & COLE, C. R. (1955). **Toxoplasmosis. VI. Isolation of toxoplasma from milk, placentas, and newborn pigs of asymptomatic carrier sows.** — *Amer. J. vet. Res.* **16,** 536-539. [Authors' summary modified.] **810**

Toxoplasma gondii was isolated from 2 piglets collected aseptically as they emerged from the birth canal, and from the milk and the heart of a naturally infected sow which was consistently asymptomatic. Toxoplasms were isolated from the milk and from 3 of 4 piglets from a second apparently healthy naturally infected sow. Thus pregnant, apparently healthy, sows carrying *Toxoplasma* transmitted the infection to their piglets *in utero*. Furthermore, the protozoon was carried in edible portions of the carcass.

Toxoplasma was isolated from the milk at the time of parturition of 2 naturally infected sows and from the milk of an experimentally infected gilt. It was present in the placentas from 2 of 3 experimentally infected gilts. Inoculation of gilts late in gestation (84th to 108th day) did not result in congenital infection in their young.

NEWBERNE, J. W. (1955). **The pathology of leucocytozoon infection in turkeys with a note on its tissue stages.**—*Amer. J. vet. Res.* **16,** 593-597. [Author's summary slightly modified.] **811**

Histopathological studies were made of various organs of 7 turkeys with chronic infection with *Leucocytozoon smithi*. Mature gametocytes of *L. smithi* found in the peripheral blood and tissue blood spaces were elongate forms. Schizonts of *L. smithi* were found only in the liver and were of the type designated "hepatic schizonts" in *L. simondi* infection. This is the first illustrated description of a schizogonous phase of *L. smithi*. Local host tissue reaction did not occur in relation to the gametocyte or hepatic schizont stages of the parasite. Significant lesions resulting from chronic systemic infection were hepatic haemosiderosis and lymphocytic infiltration. Minor, but variable, lesions occurred in the spleen, lungs, and bone marrow.

See also abstr. **861** (Tr. foetus agglutinins in calves); **1072** (book, protozoa).

DISEASES CAUSED BY VIRUSES AND RICKETTSIA

GARCÍA MATA, E., FEDERER, K. E., PIZZI, L. & ARAMBURU, H. G. (1955). Accion patogena del virus aftoso en neonatos de differentes especies. **[Pathogenicity of foot and mouth disease virus for new-born animals.]**—*Gac. vet. B. Aires.* **17,** 57-64. **812**

All three types (A, O and C) of F. & M. disease virus were highly pathogenic for newborn g. pigs, rabbits, pigs, puppies, kittens, kids, lambs, calves and foals. Experimental infection was characterized by a steady rise in temp., paraplegia, respiratory and digestive derangements and death in 30–60 hours after infection. The most marked lesions were degenerative myocarditis and congestion of the alimentary tract with necrosis of the musosa. Virus content was highest in the heart muscle which constituted the antigen of choice for the c.f. test. Type specificity was retained throughout. The antibodies in calves were derived from the colostrum ingested, and there was no evidence of transmission of antibodies through the placenta.—T.E.G.R.

BIONDO, G. (1955). Indagini elettroforetiche su sieri di sangue di capre immunizzate contro l'afta epizootica. **[Electrophoresis of serum from goats immunized against foot and mouth disease.]**—*Zooprofilassi.* **10,** 465-474. [English and French summaries.] **813**

Nine goats were immunized with F. & M. disease vaccine (types O and A) and serum samples were examined on the first, second, third and ninth days thereafter. By the ninth day there was clear indication of a fall in albumin and α_1 globulins and an increase in γ globulins. The changes in α_2 and β globulin levels varied both up and down and seemed to depend on individual factors.

—I. W. JENNINGS.

MÉSZÁROS, J., SZENT-IVÁNYI, M., TAKÁCS, L. & BEREZNAY, T. (1955). Herstellung von Hyperimmunserum gegen Maul- und Klauenseuche mit Hilfe von inaktiviertem Serum. **[Preparation of hyperimmune serum against foot and mouth disease with the aid of in-**

activated serum.]—*Acta vet. hung.* **5,** 281-288. [In German. Russian summary.] **814**

A bivalent (O+A) serum against F. & M. disease, prepared by the method described by Mérieux *et al.*, diluted 1 : 3276, was found to neutralize 10 million LD_{50} of the F. & M. disease virus type A_5 in white mice.

—W. R. Bett.

Fellowes, O. N., Dimopoullos, G. T. & Callis, J. J. (1955). **Isolation of vesicular stomatitis virus from an infected laboratory worker.** — *Amer. J. vet. Res.* **16,** 623-626. [Authors' summary modified.] **815**

A scientist, FW, became ill following accidental contamination of his face and eyes with vesicular stomatitis (VS) virus, New Jersey type. An agent was isolated by inoculation of the patient's blood into embryonating eggs. The following results revealed this agent to be New Jersey type VS virus :— Neutralization of the FW agent in inoculated eggs was demonstrated with 2 successive samples of FW serum taken 14 and 80 days after infection and anti-vesicular stomatitis bovine serum of the New Jersey type, but not with normal bovine serum or 2 earlier samples of FW serum taken 8 days before or one day after infection. Tests in g. pigs demonstrated neutralization of the FW agent by anti-vesicular stomatitis bovine serum of the New Jersey type, but not with normal bovine serum. Complement-fixation tests using the FW agent as antigen in the presence of New Jersey and Indiana types of VS hyperimmune g. pig serum and similar tests using the serum from FW convalescent g. pigs in the presence of New Jersey and Indiana type viruses as antigens were positive for the New Jersey type only. C.f. tests using FW serum in the presence of New Jersey and Indiana types of VS antigen derived from chorioallantoic membranes of infected embryonating egg were positive for the New Jersey type only.

Béládi, I. O. & Ivánovics, G. (1954.) Laboratóriumi állatok immunizálása ultraibolya-fénnyel inaktivált Aujeszky-féle virussal. **[Immunization experiments with Aujeszky virus which had been inactivated by ultra-violet irradiation.]**—*Mag. állator. Lapja.* **9,** 255-259. [English and Russian summaries.] Also in *Acta microbiol. Acad. sci. hung.* **2,** 151-160. [In German.] **816**

G. pigs and mice were immunized by chick embryo culture of Aujeszky's disease virus, inactivated by ultra-violet irradiation. Irradiation appeared to have no effect on the antigenic properties of the virus.—E.G.

Cristodoulou, T. & Tarlatzis, C. (1953). Action de l'auréomycine sur le virus de la pseudorage. **[Action of aureomycin on the virus of Aujeszky's disease.]** — *Bull. Acad. vét. Fr.* **26,** 417-420. **817**

Aujeszky's virus (as infected rabbit brain emulsion) incubated with chlortetracycline (aureomycin) (50 mg./ml.) for 30 min. was inoculated on to the chorio-allantoic membrane of embryonated eggs. After 5 days' incubation no lesions were found on the membrane and no virus was present, as demonstrated by rabbit inoculation.

A rabbit inoculated simultaneously with virus s/c and 10 mg./kg. chlortetracycline i/v remained healthy, but 2 other rabbits which were not treated until clinical signs appeared did not survive.—J. T. Done.

Eads, R. B., Wiseman, J. S., Grimes, J. E. & Menzies, G. C. (1955). **Wildlife rabies in Texas. A preliminary report.** — *Publ. Hlth Rep., Wash.* **70,** 995-1000. **818**

Rabies virus was frequently isolated from the brain and salivary glands of Mexican free-tailed bats *(Tadarida mexicana)*, taken from a cave in central Texas. Faeces of raccoons on the floor of the cave contained bat fur and bones.—M.G.G.

van Waveren, G. M. (1955). Rabies laboratoriumdiagnostiek en vaccinatie bij dieren. **[Rabies: laboratory diagnosis and vaccination in animals.]**—*Tijdschr. Diergeneesk.* **80,** 961-977. [English, French and German summaries.] **819**

W. discussed the diagnosis of rabies and the preparation and use of vaccines. He recommended the Flury chick-embryo vaccine for the inoculation of dogs in the Netherlands.

—R.M.

Veeraraghavan, N. & Balasubramanian, A. (1954). **A note on the action of ACTH in rabies.**—*Indian J. med. Res.* **42,** 9-12. **820**

A note recording that no beneficial results were obtained when adrenocorticotrophic hormone was injected intramuscularly at 1·0 or 1·5 mg. every 8 hours for 8–16 days, in rabbits infected either subcutaneously or intracerebrally with fixed virus.—R. N. Mohan.

Laurance, B. (1955). **Cowpox in man and its relationship with milker's nodules.**—*Lancet.* **268,** 764-766. **821**

L. describes briefly an outbreak of cow pox in a small herd of cows in Gloucestershire. The farmer, who had never been vaccinated against smallpox, became infected and his symptoms are detailed. Examination of serum samples taken on the 9th and 18th days of the disease revealed that a marked rise in titre of complement-fixing antibodies occurred.

"Milkers' nodules" are mentioned only in the discussion.—J. R. HUDSON.

GIOVANNONI, M. & NOBREGA, P. (1954). Estudos sôbre vacina contra bouba aviária. **[Studies on a vaccine against fowl pox.]**—*Rev. Fac. Med. vet., S. Paulo.* **5,** 235-238. [English abst. modified.] **822**

The authors present the results obtained with a vaccine prepared from a Dutch strain of pox virus isolated from pigeons and cultivated on the chorioallantoic membrane of hen's eggs. For the preparation of the vaccine they use the embryo as well as the yolk, albumen, membranes and fluids. The vaccine diluted with buffered glycerol retained its antigenic potency after storage in the ice box for 6 months. It is applied by scarification.

FAZEKAS DE ST. GROTH, S. (1955). **Production of non-infective particles among influenza viruses: do changes in virulence accompany the von Magnus phenomenon?**—*J. Hyg. Camb.* **53,** 276-296. [Author's summary modified.] **823**

Two new statistical methods—one parametric, the other non-parametric—were developed to compare the slopes of quantal infectivity curves. Ten influenza strains were examined by these tests, and the results showed that virus yielded by the von Magnus phenomenon, (*i.e.*, containing "incomplete" particles) and standard infective virus do not differ in the slope of their infectivity curves. It was concluded that the von Magnus phenomenon yields a mixture of infective and non-infective particles; on this evidence the suggestion of Fulton (1953) of uniformly changed virulence is untenable.

MIURA, S., SATO, G., MIYAMAE, T., HIRATO, K., SHIMIZU, K., NAKAMURA, R. & SONODA, M. (1954). **A preliminary report on an experiment on the transmission of equine infectious anemia virus to sheep.**—*Jap. J. vet. Res.* **2,** 55-63. [In English.] **824**

Temperature reaction and fall in erythrocyte count followed inoculation of lambs with the virus of equine infectious anaemia. The persistence of the virus for a month in the lambs' tissues was demonstrated and there is a possibility that it propagated there.

—W. S. MARSHALL.

PETERS, J. T. (1954). ***Trifur equorum* infection in man.**—*New Engl. J. Med.* **251,** 1022-1023. **825**

A professor of pathology in a veterinary college in the U.S.A. often in contact with infected horses developed equine infectious anaemia. Symptoms were a skin eruption, followed by diarrhoea alternating with constipation, with weakness, pallor and severe headache. There was one intestinal haemorrhage. Blood examination usually showed about 4·3 g. haemoglobin per 100 ml., r.b.c. count 2,000,000 per cu. mm., mean corpuscular Hb 23μg. and colour index 0·8. Poikilocytosis and anisocytosis were always present. The w.b.c. count was 1,800–2,600, with a relative lymphocytosis. Platelet counts were normal, but there were so-called "giant platelets".

Three healthy horses died from E.I.A. after he had inoculated them with 1 ml. of the blood. The patient improved after 2 years and horses inoculated with his blood remained healthy. [This paper is of considerable interest for its confirmation of earlier reports in German and French literature of cases of E.I.A. in man. According to Hutyra & Marek there are four cases in the literature which have been confirmed by experimental production of the disease in horses after inoculation of blood from man. Of these cases the best documented is that of the German veterinarian Lührs. The clinical features of Lührs' case very closely resemble those of the case now described from America.

It is of interest to note that Peters, J. Th. (1924) showed that although E.I.A. could be transmitted to man it was not possible to infect horses with blood taken from cases of human pernicious anaemia.

References :—

LÜHRS. (1920). *Z. Veterinärk.* **32,** 89-95.
PETERS, J. Th. (1924). *Pr. méd.* p. 105.
HUTYRA, MAREK, MANNINGER & MÓCSY. (1954) [Special pathology and therapeutics of diseases of domestic animals.] 10th (German) Edition. Vol. I, p.277.
Van der Hoeden, J. (1946). [Zoonoses.] (In Dutch.) pp. 258-262.—Ed. *V.B.*].

—M.G.G.

BARTHA, A. & FEHÉR, D. (1955). **On equine virus abortion.**—*Acta vet. hung.* **5**, 203-214. [In English. Russian summary.] **820**

A record of an outbreak at a breeding stables in which 44 pregnant mares were at risk. There were 10 abortions and 9 births before a diagnosis was made. A complement-fixation test was then used to separate the remaining 25 pregnant mares. Of 9 non-reactors which were fully isolated, none aborted. Of 10 non-reactors, which could not be isolated on account of shortage of space, 9 became positive reactors and 7 of these aborted.—A. SEAMAN.

IYER, S. V., SHANMUGAM, S. & VENKATARAMAN, V. (1955). **Studies on freeze dried rinderpest goat tissue vaccine.**—*Indian vet. J.* **32**, 28-39. **827**

A note describing the technique followed in Madras for preparing freeze-dried goat spleen vaccine and the standards etc. prescribed for testing, storage and use in the field. Immunity to rinderpest developed 72 hours after vaccination.—R. N. MOHAN.

SHARMA, R. M. & RAM, T. (1955). **Scarification *versus* subcutaneous method of vaccination against rinderpest in goats and sheep.**—*Indian J. vet. Sci.* **25**, 129-142. **828**

In sheep and goats known to possess different degrees of susceptibility to rinderpest the reactions following the application of goat spleen vaccine by skin scarification were no milder than those evoked by subcutaneous injection.—R. N. MOHAN.

DANSKIN, D. (1955). **Elementary bodies in bovine malignant catarrh.**—*Nature, Lond.* **176**, 518. **829**

D. reported that in smears made from the spleen, lymph nodes, lungs and vermiform appendix of rabbits reacting to bovine malignant catarrh, he had demonstrated elementary and initial type bodies identical with those found in the psittacosis group of virus diseases. In smears and sections of bovine tissues the bodies were found to be less numerous and more easily confused with cellular debris. He also recorded successful transfer of the disease from rabbits through two passages in the yolk-sac of fertile hen's eggs, storage of a yolk-sac for 8 months at −10°C., followed by two more yolk-sac passages and so back to one out of two cattle inoculated into the lymph nodes.

—J. R. HUDSON.

PIERCY, S. E. (1955). **Studies in bovine malignant catarrh. VI. Adaptation to rabbits.**—*Brit. vet. J.* **111**, 484-491. [Author's summary modified.] **830**

The virus of bovine malignant catarrh was adapted to rabbits and passed through 10, 4, 11, and 56 generations on 4 separate occasions. The importance of experimenting with various strains of virus, if necessary, for initial rabbit adaptation, was stressed. A wide variety of rabbit tissues and routes of inoculation were employed successfully. Clinical symptoms, the course of the disease, and P.M. findings in the rabbit were described. Lapinized virus, returned to cattle at the 4th, 7th and 9th rabbit passages, caused death from malignant catarrh. Its viability, infection titre, immunizing ability and susceptibility to antibiotics remained similar to those of the parent laboratory strain "D".

GREGOROVIČ, V. (1955). Hlevska enzootija goveje influence na Slovenskem. **[Bovine influenza epidemic in Slovenia.]** — *Vet. Glasn.* **9**, 382-393. [In Slovene. German summary.] **831**

The clinical picture is described and details are given of sulphathiazole and yatren [a non specific protein] treatment of a mild form of infectious broncho-pneumonia in a herd of 6 cattle. The origin of the outbreak was traced to a young bull, imported from Austria and kept in the same cowshed. During the disease and after recovery all the cows gave birth to normal calves. Three horses which had been in close contact with the herd remained healthy.—E.G.

MILLAR, P. G. (1955). **Viral infertility in cattle.**—*Brit. vet. J.* **111**, 309-315. [Author's summary modified.] **832**

A syndrome of herd infertility in cattle was described. It appeared to be associated with the venereal transmission of a filtrable virus which, although capable of inducing an endometritis of specific type, may further impair fertility by enhancing the virulence of potentially pathogenic organisms already present in the genital tract. No attempt was made to ascertain the incidence of this herd syndrome, but clinically there were aspects commonly associated with *Vibrio fetus* infection. It is known, also, that some herd problems, initially expected to be linked to vibriosis, fail on further investigation to reveal the presence either of *V. fetus* or of any other known pathogen.

VRTIAK, J. & VRZGULA, L. (1955). Prìspevok k mušcu oviec a kôz (ecthyma contagiosa—dermatitis pustulosa necroticans ovium et caprarum). **[Contagious pustular dermatitis in sheep and goats in Slovakia.]**—*Vet. Čas.* **4,** 65-79. [In Slovak. German and Russian summaries.] **833**

Contagious pustular dermatitis was studied under natural conditions in 250 goats from 2 herds and 2,000 sheep from 5 flocks. There were 3 forms of the disease, affecting the lips, the external genital organs and the feet. In lambs mortality reached 90%. The disease was freely transmissible between sheep and goats and quite distinct from foot rot. Immunization by scarification was carried out in 25 lambs and kids, using dried, powdered scabs preserved in glycerol and suspended in saline. This method conferred immunity to natural and experimental infection lasting up to 12 months.—E.G.

MOLNÁR, I. (1954). Precipitációs kísérletek sertéspestis virusát tartalmazó anyagokkal. **[Precipitation reaction with swine fever material.]**—*Mag. állator. Lapja.* **9,** 146-148. [English and Russian summaries. Abst. from summaries.] **834**

M. described the use of the agar diffusion-precipitation test for the demonstration of swine fever virus in lymph nodes from infected pigs and in crystal violet vaccine, and also for the demonstration of antibodies in swine fever immune serum.—E.G.

SLANINA, L. (1955). Porovnávacie štúdium klinického pozorovania a patohistologických zmien v cns u akútnych chronických a vyzdravených prípadov nákazlivej obrny ošípaných. **[Clinical study and histology of lesions in the central nervous system of pigs with acute and chronic Teschen disease and in convalescents.]**—*Vet. Čas.* **4,** 29-46. [In Slovak. Russian and German summaries.] **835**

S. compared the clinical picture with the histopathology of the c.n.s. in 26 pigs, 21 of which were infected intranasally and four intracerebrally with Teschen disease virus suspensions. One pig was infected by contact.

In 6 of 11 pigs which developed an acute form of the disease and were killed 11 days after infection there was marked perivascular lymphoid infiltration, particularly in the grey substance of the cord and in the base of the cerebellum. Among other lesions there was fibrilolysis, chromatolysis and proliferation of the glia.

In one of 8 pigs which developed a chronic form and were either killed or died 11–63 days after infection, there were marked lesions comparable to those found in acute cases.

In 7 pigs which had recovered within 12–63 days after infection and were killed at various times within 321 days, there was irregular thickening of the vascular adventitia. Transitional forms of lymphocytes were present in the ventral horns of the spinal cord and in the base of the cerebellum. There were no lesions in the pia mater and in the cerebral cortex.—E.G.

HENDERSHOTT, R. (1955). **Report of the representative on the advisory committee to Secretary Benson on vesicular exanthema.**—*Proc. 58th Ann. Meet. U.S. live Stk sanit. Ass.*, Omaha, 1954. pp. 46-51. **836**

Through the programme inaugurated by the advisory committee, the disease, which had suddenly become widespread in all parts of the U.S.A., has in large measure been eradicated except from its source of spread, California, and from the Eastern Seaboard. All except 5 States now have regulations making it compulsory to cook swill adequately before feeding it, and fortnightly inspections of swill-feeding establishments are carried out.
—A. ACKROYD.

YOUNG, G. A., HINZ, R. W. & UNDERDAHL, N. R. (1955). **Some characteristics of transmissible gastroenteritis (TGE) in disease-free antibody-devoid pigs.** — *Amer. J. vet. Res.* **16,** 529-535. [Authors' summary modified. **837**

Some characteristics of this disease were determined by tests on young hand-reared pigs. The findings are summarized as follows:— The infective agent passed a 230 mμ but not a 170 mμ gradocol membrane. Its particle size was estimated at 200 mμ. Five-day-old piglets were refractory to large doses of the agent on intratracheal instillation and intraperitoneal injection, but were susceptible to intranasal and intragastric instillation. Although it did not ordinarily multiply in lung tissue of 6-day-old piglets following intranasal instillation, it did so in the lung of piglets inoculated when 2 hours old; the opposite occurred in the nasal mucosa. It multiplied in all portions of the gastro-intestinal tract. Viraemia 48 or more hours after inoculation was common. Piglets developed a resistance as they grew older. Mortality approached 100% in piglets less than a week

old. Obvious infections occurred in 11– and 17-day-old piglets, but mortality was low. In 24-day-old piglets, infection occurred but was inapparent. Specific antiserum was produced in 16-week-old piglets. It contained sufficient antibody to neutralize the virus *in vitro* and to prevent the death of infected piglets.

PARNAS, J., LORKIEWICZ, Z., SZCZYGIELSKA, J., CHALANKA-KWARTOWA, H. & KADZIOŁKA, A. (1954). Badania nad wirusem pneumotropowym u świń w P. G. R. **[Studies on the pneumotropic virus of pigs in the State Agricultural Farms.]**—*Ann. Univ. M. Curie-Skłodowska. Sect. D.D.* **9,** pp. 1-28. [In Polish. English and Russian summaries.] **838**

A pneumotropic virus pathogenic to young pigs and mice, but not to fowls and rabbits, was isolated for the first time in Poland. Serologically it appeared to be closely related to Shope's piglet influenza virus, but differed from the virus of human influenza. In the course of experimental transmission the authors found Newcastle disease virus in eggs obtained from farms infected with the Newcastle disease virus or where fowls had been vaccinated with a live, avirulent strain of N.D.V. The presence of a similar virus was suspected in the lungs and naso-pharyngeal washings of pigs affected with influenza and in the authors' opinion, the possibility of the occurrence of Newcastle disease virus in young pigs cannot be excluded.

They described a haemagglutination-inhibition test technique which in their opinion should be helpful in an early diagnosis of piglet influenza.—M. GITTER.

GORHAM, J. R., FARRELL, R. K. & OTT, R. L. (1955). **Preliminary studies on a living virus dust vaccine for distemper.**—*Cornell Vet.* **45,** 326-330. [Abst. from authors' summary.] **839**

In the blood serum of 7 mink which inhaled live egg-adapted distemper virus in the form of a dust, serum-neutralizing antibodies were demonstrable by the egg-neutralization test. No neutralizing antibody titre was demonstrable in serum samples from 9 controls. Twelve out of 14 ferrets which inhaled the "dust vaccine" were immune to challenge with virulent virus to which 6 controls succumbed.

OTT, R. L. & GORHAM, J. R. (1955). **The response of newborn and young ferrets to intranasal administration with egg-adapted distemper virus.**—*Amer. J. vet. Res.* **16,** 571-572. [Authors' summary modified.] **840**

The response was studied of vaccinated, new-born and young ferrets from immune and susceptible dams to challenge with virulent distemper virus. Young ferrets from dams susceptible to distemper could be immunized at 8 days of age, whereas young from immune dams could not until 36–47 days after parturition.

WEST, J. L. & BRANDLY, C. A. (1955). **The adaptation of fox distemper virus to white mice.**—*Cornell Vet.* **45,** 560-569. [Authors' summary modified.] **841**

Two strains of fox distemper virus were adapted and serially passaged for 40 and 12 transfers in mice by double intranasal inoculation. The lungs of the mice were partially consolidated. Highly invasive strains were essential. Immune and hyperimmune sera inhibited pneumonic changes; normal fox, mouse, and human sera had no effect. Mouse lung suspensions induced transmissible infection in fox cubs, which then showed some resistance to challenge exposure. Successive virus inoculations were necessary to maintain the infection. Chicken and mouse blood cell suspensions were not agglutinated by the mouse lung suspensions.

GYLSTORFF. (1955). Gehirnveränderungen bei infektiöser Laryngo-Enteritis der Katze. **[Brain lesions in infectious feline laryngo-enteritis.]**—*Dtsch. tierärztl. Wschr.* **62,** 57-59. **842**

G. examined the brain of 10 cats with the infectious laryngo-enteritis described by Krembs & Seifried [*V.B.* **7,** p. 345 and **11,** p. 521]. Changes in the vascular and ganglion cells were typical of those resulting from circulatory disturbance. Attempts at isolating a virus from this material failed.—R.M.

HUDSON, J. R., THOMPSON, H. V. & MANSI, W. (1955). **Myxoma virus in Britain.**—*Nature, Lond.* **176,** 783. **843**

Only in the Sherwood Forest area in Nottinghamshire have attenuated strains of myxoma virus been found in Britain. Serum samples from 64 rabbits were examined; immune bodies were present in 32. Four strains were isolated, which in tests proved to be of reduced virulence. Three strains obtained recently, although not of full virulence, were more virulent than the four obtained some months previously.—M.G.G.

HUDSON, J. R. & MANSI, W. (1955). **Attenuated strains of myxomatosis virus in England.** —*Vet. Rec.* **67,** 746-747. **844**

Attenuated strains of myxomatosis virus were recovered from naturally infected rabbits. A similar strain was isolated from a hare which was recovering from the disease. They produced a "nodular" type of infection when inoculated into rabbits, characterized by the formation of numerous small nodules covering large areas of the body. The nodules began as oedematous swellings, which later shrank and became covered with a scab. The massive oedema characteristic of infection with fully virulent virus was absent. Only one out of 24 rabbits inoculated with these attenuated strains died.—R.M.

FENNER, F. & MARSHALL, I. D. (1955). **Occurrence of attenuated strains of myxoma virus in Europe.**—*Nature, Lond.* **176,** 782-783. **845**

Fifteen European strains of myxoma virus were tested on rabbits. Two attenuated strains were demonstrated:— 'Loiret April 1955', and 'Nottingham April 1955'. Out of 5 rabbits inoculated with the Nottingham strain, 2 survived. Estimation of the skin titre of secondary nodules on 3 rabbits on the 26th day after inoculation with the Nottingham strain gave figures of $10^{5.3}$, $10^{5.6}$ and $10^{5.8}$ rabbit-infective doses per g., which is lower than that of Australian attenuated strains at the same stage of disease.—M.G.G.

LEITNER, J. (1954). Der diagnostische Wert der serologischen Geflügelpestdiagnose aus Organextrakten und Blutabgüssen. **[Serological diagnosis of Newcastle disease from organ extracts and blood clots.]**—*Inaug. Diss., Munich.* pp. 23. **846**

In 40% of 159 fowls infected with Newcastle disease a positive diagnosis could be obtained by means of the haemagglutination-inhibition test, using organ and blood extracts obtained P.M., as source of specific antigen. Extracts of liver, spleen and proventriculus were found to be most suitable, whereas blood extracts gave positive results only in the more chronic cases.

—W. G. SILLER.

WEIDENMÜLLER, H. (1955). Die Zuverlässigkeit der serologischen Geflügelpestdiagnose aus Organextrakten, Blutabgüssen und Eidotter. **[Reliability of serological diagnosis of Newcastle disease by the examination of organ extracts, blood, and egg-yolk.]** — *Mh. Tierheilk.* **7,** 42-49. **847**

Organ extracts and the yolk from eggs of infected fowls are reliable sources of antibodies for the Newcastle disease haemagglutination-inhibition test. Resuspended blood coagula and ovarian follicles of birds that have died are, however, unsuitable.

—W. G. SILLER.

YATES, V. J., WASSERMAN, B. & FRY, D. E. (1954). **Immunity studies with Newcastle disease vaccine (intramuscular type).**—*Proc. 26th Ann. Meet. N.E. Conf. Lab. Wkrs. Pullorum Dis. Contr.*, Raleigh, N.C., June 14-15, 1954. pp. 3. [No pagination.] [Mimeographed.] **848**

In two trials the authors compared the results obtained using the intradermal test of immunity in chickens vaccinated against Newcastle disease by the intramuscular route, with those obtained by challenge with (1) a field strain of N.D.V. and (2) the GB strain of N.D.V. In neither case did the results agree entirely, and in the second trial an outbreak of mild respiratory symptoms occurred in birds that were apparently immune as judged by their response to challenge with the GB strain. Attempts to isolate a virus, however, failed. A third trial was abandoned because the vaccinated chickens developed Newcastle disease 3 weeks after vaccination.

—F.E.W.

EDLINGER, E. & DE VAUX-SAINT-CYR, C. (1955). Une méthode simple de purification du virus de la peste aviaire atypique. **[A simple method of purifying Newcastle disease virus.]** —*C. R. Acad. Sci., Paris.* **241,** 129-131. **849**

Newcastle disease virus contained in the chorioallantoic fluid of chick embryos was initially purified by adsorption on r.b.c. and washing in saline. The virus was then precipitated by diluting the saline suspension 1 : 9 with water. The precipitated virus was recovered by repeated centrifugation at 3,000 r.p.m. for periods of 30 min. It was very pure but was devoid of haemagglutinating power.

—R.M.

LAURIE-RHODES, L. J. (1955). **Problems relating to the differential diagnosis and control of respiratory disease in poultry.**—*Aust. vet. J.* **31,** 194-203. **850**

Several severe outbreaks of fatal respiratory disease in poultry are recorded from Victoria (in one case over 3,000 chickens died in 10 days in a flock of 4,000). Most outbreaks were associated with and immediately followed vaccination against infectious laryngotra-

cheitis mainly with pure egg-grown vaccines. The disease occurred in ducklings as well as fowls. Infected agents isolated included species of *Pasteurella* and laryngotracheitis virus. Despite filtration, egg inoculations, culture, passage, and cross-immunity tests, the overall picture still remains obscure. Newcastle disease occurred in Victoria in 1929 and 1932 but it was considered to have been eradicated following the adoption of a slaughter policy.—L. HART.

FAHEY, J. E. & CRAWLEY, J. F. (1955). **Studies on chronic respiratory disease of chickens. VI. The effects of antibiotics on the clinical and serological course of CRD.**—*Canad. J. comp. Med.* **19,** 281-286. **851**

Fowls inoculated with material containing both pleuropneumonia-like organisms (PPLO) and the virus of "chronic respiratory disease" (CRD) were fed diets containing 200 g. per ton of aureomycin or terramycin. The development of haemagglutination-inhibiting antibodies in treated birds was found to be retarded, although PPLO could still be recovered on culture. The clin. course of the disease was not much changed. There was reduced mortality and an improved feed conversion over control birds, but the economic gain was offset by the added cost of the feed.
—A. S. GREIG.

FISCHER, K. R. (1955). Etwas über den Stand der Psittacosis in Westdeutschland—diesmal aus etwas anderer Schau. Ewig wiederaufflackernde Papageienkrankheit — ein latentes Problem in Deutschland. **[The present position regarding psittacosis in Western Germany.]**—*Dtsch. tierärztl. Wschr.* **62,** 279-282. **852**

Despite quarantine and restrictions regarding the importation of psittacine birds and repeated and widespread destruction of infected and suspected birds, outbreaks of psittacosis are periodically diagnosed in human beings in Germany. F. is of the opinion that this is due to illicit import and that possibly most German-bred budgerigars and many wild birds, particularly pigeons, may be immune carriers. He therefore suggests that the import restrictions are illogical and that they should be suspended and replaced by country-wide blood testing of susceptible birds in order to establish the extent of latent infection.
—W. G. SILLER.

MASON, D. M. & IRONS, J. V. (1955). **Epidemiology andepizootiology of turkey psittacosis.**—*Proc. 58th Ann. Meet. U.S. live Stk sanit. Ass.*, Omaha, 1954. pp. 326-329. **853**

The authors discussed the various outbreaks of psittacosis among workers in turkey dressing plants in Texas. The plucking machines create a fine aerosol-like spray and most of the cases occurred in workers exposed to this fine mist; this would suggest that the infection was air-borne. Virus has been recovered on at least 12 different farms and in turkeys the disease was insidious in its onset as compared with the explosive nature of the outbreaks in human beings. Details are given of the P.M. findings in turkeys. The difficulties of devising satisfactory methods of control are discussed.—D. LUKE.

MEYER, K. F. (1955). **Turkey ornithosis.**—*J. Amer. vet. med. Ass.* **127,** 136. **854**

M. considers that the term "turkey ornithosis" should be applied to the disease of turkeys at present called turkey psittacosis [see preceding abst.] and that the use of the term psittacosis should be restricted to infections transmitted from psittacine birds to man.
—D. LUKE.

JANSEN, J. (1955). L'ornitosi nei piccioni e sue ripercussioni nel campo umano. **[Ornithosis (psittacosis) in pigeons and man in the Netherlands.]** — *Zooprofilassi.* **10,** 495-501. **855**

Psittacosis is fairly widespread in pigeons in Holland. For example, in the year 1954, of 2,637 pigeons examined 16·4% were infected. A sharp seasonal rise in Sept. and Oct. coincides with the beginning of the racing and show season, when large numbers of young birds are congregated together for the first time. J. does not recommend a policy of control by slaughter but suggests that owners should be taught to recognize the early symptoms of the disease, and should isolate their flocks whenever infection appears. Very few human cases of psittacosis are reported (54 in 1954) and it is concluded that the infectivity for man is relatively low.
—I. W. JENNINGS.

BOSZJAN [BOSHYAN], G. M. (1954). Nowe dane eksperymentalne o naturze wirusów i bakterii i ich znaczenie dla teorii i praktyki. **[New data on the nature of viruses and bacteria.]**—*Méd. vét., Varsovie.* **10,** 487-490. [In Polish.] **856**

B. discussed progress made in research on viruses in the U.S.S.R., with particular reference to the ability of the viruses of equine

infectious anaemia, swine fever and F. & M. disease to mutate into bacterial forms, visible under the electron microscope.

—J. R. MITCHELL.

KOVALENKO, Y. R. (1955). **[Report of the Commission investigating Boshyan's theory on the nature of viruses and bacteria.]** — *Veterinariya, Moscow.* **32,** No. 6, pp. 6-14. [In Russian.] **857**

For some years past, Prof. Boshyan has put forward some very unorthodox theories [*V.B.* **23,** 2299, 3071, **24,** 777; and preceding abst.] based on his experimental work. He believes that bacterial species are not constant and that viruses mutate into ordinary bacterial forms. He throws doubt on all specific prophylactic and therapeutic measures, carried out with sterile preparations. He claims to have isolated living organisms from vaccines killed by formol and heat and from immune sera, and to have found tubercle bacilli in tuberculin, glanders bacilli in mallein and brucella organisms in brucella hydrolysates, *i.e.,* living organisms in repeatedly autoclaved preparations. He regards vaccines that do not contain living organisms as useless if not harmful. He further claims to have transformed numerous viruses and microbes into crystals, without, however, describing the physico-chemical or biological characteristics of these crystals.

The Ministry of Agriculture of the U.S.S.R. appointed a Committee consisting of distinguished bacteriologists to investigate these claims and Prof. Boshyan was asked to submit an account of his work. The experimental work of the Commission lasted seven months and was recorded from day to day. Reports of veterinary authorities that had given Boshyan's methods large-scale trials were included in the findings of the Commission. These findings were as follows :—

I. (1) The viruses of sheep pox and of swine fever could not be transformed into bacterial forms.

(2) No viable organisms were obtained from vaccines, sera, tuberculin, mallein or tetanus toxoid, except on very rare occasions when it was clearly a matter of airborne contamination.

II. Prof. Boshyan's methods are not such as to ensure avoidance of contamination.

III. Of Boshyan's own diagnostic and therapeutic preparations—(1) "anaemin" for the diagnosis, and (2) a vaccine for the treatment of equine infectious anaemia were examined. "Anaemin" was found to be entirely non-specific. The vaccine was tested on thousands of horses all over the country and found quite ineffective. A variety of contaminants were isolated from samples of the vaccine. Boshyan's swine fever vaccine, prepared from "bacterial forms of the virus", also did not confer immunity. This vaccine, too, contained contaminants, including a *Staph. pyogenes.*

The Commission regret that veterinary surgeons and livestock workers have been misled by Boshyan's publications.

Shortly before the Commission concluded their work, Prof. Leonov (who, in previous publications, had committed himself to Boshyan's views) withdrew, on the ground that the commission did not follow exactly Boshyan's methods. In the final formulation of the Commission's report, Prof. Kolesov, while basically agreeing with the Commission's findings, added as his personal opinion that the Commission had not proved that all formolized vaccines were free from viable forms of the original organisms.—A. MAYR-HARTING.

I. STOKER, M. G. P., BROWN, R. D., KETT, F. J. L., COLLINGS, P. C. & MARMION, B. P. (1955). **Q fever in Britain: isolation of *Rickettsia burneti* from placenta and wool of sheep in an endemic area.**—*J. Hyg., Camb.* **53,** 313-321. **858**

II. STOKER, M. G. P. & MARMION, B. P. (1955). **Q fever in Britain: isolation of *Rickettsia burneti* from the tick *Haemaphysalis punctata.***—*Ibid.* 322-327. [Authors' summaries slightly modified.] **859**

I. In an endemic area of Q fever in south-east England, 2 flocks of sheep, with serological evidence of infection by *R. burneti,* were examined for excretion of the organism at parturition. *R. burneti* was isolated from 2 out of 96 placentas collected from 118 ewes which lambed in one flock. It was also isolated from "wool tags" obtained from one of the ewes which voided an infected placenta. Infectivity titrations showed that the 2 placentas contained respectively $10^{4.5}$ and $10^{1.5}$ infective doses (for g. pigs) per g. of cotyledon. The wool tag from the sheep which voided the more highly infected placenta contained $10^{3.25}$ infective doses per g. Except for one doubtful result, which could not be confirmed, no isolations were made from 194 placentas collected from 199 ewes in the other flock.

II. *R. burneti* was isolated from the tick

H. punctata collected from sheep in an endemic area of Q fever in south-east England. Isolation from one batch may have been due to contamination from the wool of sheep excreting *R. burneti*, but there was evidence that isolation from another batch was due to the presence of the rickettsia in the tick tissues.

BLANC, G. & BRUNEAU, J. (1955). Ornithodores et coxiellose (Q fever). [**Relationship between *Ornithodoros* and Q fever.**] — *C. R. Acad. Sci., Paris.* **240,** 129-131. **860**

Twenty *Ornithodoros erraticus* from a rabbit burrow were fed on a g. pig and after 15 days 10 of them were ground in saline solution and injected i/p into the same g. pig. This was followed by a definite febrile reaction on the 12th day when the g. pig was killed. Enlargement of the spleen was observed on P.M. examination. Passage of spleen material to another g. pig caused a temp. reaction and visceral changes which were suggestive of Q fever. Rickettsia infection was confirmed by cross immunity tests. It was considered possible for the tick to become infected with *R. burneti* while feeding on infected rabbits.

—T.E.G.R.

See also absts. **942-943** (epidemic cough in horses); **944** (tick-borne fever in cattle); **1068** (report, Mukteswar Vet. Res. Inst.)

IMMUNITY

PIERCE, A. E. (1955). **Electrophoretic and immunological studies on sera from calves from birth to weaning. I. Electrophoretic studies. II. Electrophoretic and serological studies with special reference to the normal and induced agglutinins to *Trichomonas foetus*.** — *J. Hyg., Camb.* **53,** 247-260 & 261-275. **861**

I. At birth the serum proteins consisted of approx. 63% albumin, 27% α-globulin, 8% β-globulin and 1·4% γ-globulin. Twenty-four hours after the first feeding the γ-globulin increased to 30%. The excretion of this passively acquired globulin was masked after the 10th day by the production of autogenous γ-globulin. This production, from birth onwards, was clearly demonstrable in calves deprived of colostrum. Minimum α-globulin values were found at about 30 days.

II. Normal and induced agglutinins acquired passively by the neonatal calf from colostral globulin were eliminated logarithmically. The autogenous γ-globulin (see I) did not contain normal agglutinins until later than the 30th day.

Injection of *Tr. foetus* antigen within the first 3 weeks did not induce the production of agglutinins.—A. SEAMAN.

LEON, M. A., PLESCIA, O. J. & HEIDELBERGER, M. (1955). **The preparation and properties of fractions of pig complement. II.**—*J. Immunol.* **74,** 313-317. **862**

An account of the isolation from pig serum of two fractions of complement not previously described, containing $C^{1}1$, $C^{1}3$ and $C^{1}4$, and $C^{1}1$ and $C^{1}3$, respectively, and enhancing the lytic activity of g. pig complement probably because of their $C^{1}3$ content.

—W. R. BETT.

GORDON, J. & TURNER, G. C. (1955). **The intensifying effect of glucose on the protective action of glycine against the heat-inactivation of complement.** — *J. Hyg., Camb.* **53,** 335-338. [Authors' summary slightly modified.] **863**

The addition of glucose considerably reduced the amount of glycine required to protect complement against heat-inactivation. A similar effect was demonstrated with other sugars.

AULL, J. C. & MCCORD, W. M. (1955). **A simple, rapid procedure for the estimation of albumin and alpha, beta and gamma globulin in serum.**—*J. Lab. clin. Med.* **46,** 476-483. **864**

Serum proteins are precipitated with phosphate solutions and estimated turbidimetrically. Only one measurement of the serum sample is required and there are no filtrations or centrifugations. Estimations made on 60 samples yielded results comparing favourably with those obtained by the Wolfson technique, except in the case of α and β globulins where correlation was poor.

—JOHN SEAMER.

TIGANO, F. (1955). Ricerche sperimentali intorno all'attività del fenilbutazone su alcuni fenomeni allergici. I. Fenilbutazone e shock anafilattico. II. Fenilbutazone e shock istaminico. III. Fenilbutazone e fenomeno di Sanarelli-Shwartzmann. [**Phenylbutazone in certain allergic phenomena. I. Phenylbutazone in anaphylactic shock. II. Phenylbutazone in histamine shock. III. Phenylbutazone in the Sanarelli-Shwartzman pheno-**

menon.]—*G. Batt. Immun.* **48,** 134-148; 149-156 & 157-163. [English, French and German summaries.] **865**

The administration of phenylbutazone to g. pigs had no appreciable effect on the course of anaphylactic shock or the Shwartzman phenomenon. Some slight protective effect against histamine shock was noted when the drug was given orally in a dosage of 50 or 100 mg./kg.—I. W. Jennings.

See also absts. **688-691** (TB.); **698** (comparison of mammalian and avian tuberculins); **700** (haemagglutination and haemolysis reactions with milk and whey); **702** (genetic resistance to TB.); **707** (demonstration of antibodies in TB.) **708** (Hole's test in Johne's disease); **726-728** (swine erysipelas); **731-732** (haemorrhagic septicaemia); **745-749** (brucellosis); **756** (rapid slide agglutination by leptospiral antibodies); **759** (leptospirosis); **765-766** (botulism in mink); **771** (antigenic structure of V. fetus); **774** (a combined Br. abortus, Cl. septicum and Cl. chauvoei vaccine); **780** (bovine contagious pleuro-pneumonia); **813-814** (F. & M. disease); **816** (Aujeszky's disease); **819** (rabies); **822** (fowl pox); **827-828** (rinderpest); **834** (swine fever precipitation test); **839** (dust distemper vaccine); **840** (egg adapted distemper virus for intranasal administration); **841** (mouse-adapted distemper virus); **846-849** (Newcastle disease).

PARASITES IN RELATION TO DISEASE [ARTHROPODS]

Roth, A. R. & Eddy, G. W. (1955). **Tests with some phosphorus compounds against cattle grubs.**—*J. econ. Ent.* **48,** 201-202. **866**

The larvicidal effect of four proprietary organic phosphorus insecticides against the larvae of *Hypoderma bovis* and *H. lineatum* was tested by washing the backs of groups of "warbled" animals with one pint of each preparation respectively. Complete control was observed with the proprietary compounds "21/199", "21/200", and "L 13/59" in concentrations of 0·5%, 0·5% and 1·0% respectively, but not with 1·0% "chlorthion". Results obtained with "21/199", using a power sprayer, compared favourably with those obtained with derris at the standard dilution (7½ lb. derris in 100 gal. water).

—D. W. Jolly.

I. Knipling, E. F. (1955). **Possibilities of insect control or eradication through the use of sexually sterile males.**—*J. econ. Ent.* **48,** 459-462. **867**

II. Baumhover, A. H., Graham, A. J., Bitter, B. A., Hopkins, E. D., New, W. D., Dudley, F. H. & Bushland, R. C. (1955). **Screw-worm control through release of sterilized flies.**—*Ibid.* 462-466. **868**

III. Lindquist, A. W. (1955). **The use of gamma radiation for control or eradication of the screw-worm.**—*Ibid.* 467-469. **869**

I. A general discussion on this new technique, its potentialities and limitations. Its advantage over other measures is stressed.

II. The test area was the island of Curaçao, of approx. 170 sq. miles and about 50 miles off the coast of Venezuela, supporting a population of 25,000 goats and 5,000 sheep. Five-day-old fly pupae were sterilized by gamma rays of the strengths 5,000, 6,000 and 7,500 r. The newly-hatched flies were distributed by aeroplane twice a week at an av. rate of 435 males per sq. mile per week. In 8 weeks the fly population declined by more than 99%. After 13 weeks it appeared to be exterminated.

III. L. discussed the possibilities of screw-worm *(Cochliomyia)* eradication in Florida, and temporary control in areas of Texas where they survive the winter.—M.G.G.

Granett, P., Hansens, E. J. & O'Connor, C. T. (1955). **Automatic cattle sprayers for fly control in New Jersey.** — *J. econ. Ent.* **48,** 386-389. **870**

An apparatus for spraying cattle with liquid insecticide was designed to operate automatically when cattle depressed a treadle while passing through a crush on their way to and from farm buildings or the water trough. About 0·5 ml. of insecticide was sprayed on each animal 2–4 times daily. Most of the spray fluids tested contained 0·2–1% pyrethrins and 5–10% piperonyl butoxide in petroleum distillate. Good protection against *Siphona (Lyperosia), Stomoxys* and *Tabanus* was obtained; the method was a useful supplement to other measures for the control of flies on cattle.—D. Poynter.

Granett, P. & Haynes, H. L. (1955). **Use of cyclethrin in livestock sprays for control of flies.**—*J. econ. Ent.* **48,** 409-412. **871**

Cyclethrin, a synthetic pyrethrin-like substance, was tested for the control of horn flies and stable flies on cattle. A synergistic mixture of this substance with piperonyl butoxide or sulphoxide in an oily base was a less effective fly-repellent than a similar preparation containing pyrethrins, when sprayed at the rate of approx. 2 oz. per animal. Aqueous emulsions of the same cyclethrin preparations compared favourably with aqueous emulsions of the pyrethrin preparations.—D. Poynter.

Glover, P. E., Jackson, C. H. N., Robertson, A. G. & Thomson, W. E. F. (1955). **The**

extermination of the tsetse fly, *Glossina morsitans* Westw., at Abercorn, Northern Rhodesia.—*Bull. ent. Res.* **46,** 57-67. **872**

Discriminative bush-clearing effectively reduced the density of *G. morsitans* in an area of N. Rhodesia. The remaining flies did not breed through failure of the sexes to meet. There was some infiltration from neighbouring territories, but the experimental area became free from bovine trypanosomiasis.

—Jas. G. O'Sullivan.

Hunter, G. W., Philips, F. M., Moon, A. P., Radke, M. G., Williams, J. S., Shamir, D. H. & Padilla, J. M. (1954). **Studies on the LoneStar tick. III. Results of additional plot tests of potential acaricides (tickicides).**—*Sthwest. Vet.* **8,** 56-59. **873**

Dieldrin, applied as a dust at the rate of 0·5 or 1·0 lb. per acre, was more effective in controlling *Amblyomma americanum* than D.D.T., heptachlor, sulphenone, neotran, and N-butylacetanilide.—D. Poynter.

See also absts. **784** (transmission of T. vivax by G. palpalis); **859** (isolation of R. burneti from H. punctata); **860** (relationship between O. erraticus and Q fever); **944** (tick-borne fever in cattle); **1068** (report, Mukteswar Vet. Res. Inst.)

PARASITES IN RELATION TO DISEASE [HELMINTHS]

Kulkarni, H. V., Rao, S. R. & Chaudhari, P. G. (1954). **Unusual outbreaks of schistosomiasis in bovines due to *Schistosoma spindalis* associated with heavy mortality in Bombay State.**—*Bombay Vet. Coll. Mag.* **4,** 3-15. **874**

An account of two severe outbreaks of *Schistosoma spindalis* infestation in which 191 cattle and buffaloes were affected and 157 died. The parasites were not limited to the portal and mesenteric veins, but were found also in the heart, aorta, vena cava, lungs, liver, and spleen. Schistosome eggs were detected in the liver, brain, kidneys, heart, spleen, lungs, faeces, urine, bile and nasal discharges, intestinal mucosa and gall bladder. The high mortality occurred almost entirely before differential diagnosis from rinderpest had been made, and treatment with tartar emetic or 'antimosan' [a complex salt of antimony and catechol-potassium sulphonate] undertaken.

—M. L. Clarke.

Choudhury, B. (1955). **Nasal granuloma in the State of West Bengal. Studies on sixty-eight cases.**—*Indian vet. J.* **31,** 403-414. **875**

In a general note on nasal schistosomiasis, C. discussed the different control measures and the possibilities of their successful application under local conditions.—R. N. Mohan.

Tarczyński, S. (1955). O nowej próbie usprawnienia diagnostyki choroby motyliczej. **[Diagnosis of *Fasciola*.]** — *Méd. vét., Varsovie.* **10,** 457-460. [In Polish.] **876**

T. strongly criticized the work of the Hungarian workers, Benedek & Nemeséri (1953). Their modified sedimentation egg count method is rather complicated and can only be used in a well equipped laboratory. It can be used as a herd rather than an individual test.—J. R. Mitchell.

Soulsby, E. J. L. (1955). **Deaths in swans associated with trematode infection.**—*Brit. vet. J.* **111,** 498-500. [Author's summary slightly modified.] **877**

Echinoparyphium recurvatum is recorded in the mute swan and epidemiological considerations are discussed.

Seneviratne, R. D. & Kulasiri, C. (1955). **Arteriosclerosis of the aorta and pulmonary artery of an ox due to *Cysticerus bovis*.**—*Brit. vet. J.* **111,** 387-390. **878**

A description of the macroscopic and microscopic appearances of this condition. The authors suggest that the path of invasion is *via* the intima and that cysticerci are capable of secreting a substance causing muscle degeneration.—D. Poynter.

Downing, W., Kingsbury, P. A. & Sloan, J. E. N. (1955). **Critical tests with piperazine adipate in horses.** — *Vet. Rec.* **67,** 641-644. [Authors' summary modified.] **879**

Piperazine adipate was shown to be an efficient and safe anthelmintic for horses. A dose rate of 220 mg. per kg. (10 g. per 100-lb. body wt.) removed nearly 100% of adult and immature *Ascaris equorum* and adult *Trichonema* spp., 80% or more of adult *Oxyuris equi* and about 50 to 60% of *Triodontophorus* spp. and *Strongylus vulgaris*. The drug had no effect against *S. edentatus* and *S. equinus* nor against bots. It is unlikely that it has any effect on *Habronema* spp. or the anoplocephalid tapeworms. The efficiency against immature as well as mature ascarids may render possible their elimination from breeding studs. Results against the horse redworms were similar to those obtained with a 30-g. dose of phenothiazine.

CROFTON, H. D. (1955). **Nematode parasite populations in sheep on lowland farms. II. Worm egg counts in lambs.** — *Parasitology.* **45,** 99-115. **880**

The seasonal variation in the population and species incidence of the nematode parasite burden of sheep, was studied by faecal egg counts, and differential larval counts. There was a gradual increase in the worm burden throughout the spring and summer, with a peak in early autumn, followed by a decline, which lasted throughout the winter. The egg counts of individual sheep, although conforming to the general pattern, showed a rhythmic rise and fall, with an interval of 2–3 weeks between peaks. The species representation of the nematode population varied with the season. *Nematodirus* species were most numerous in the spring, being replaced in early summer by species of *Ostertagia;* the trichostrongyles, and *Haemonchus contortus* were predominant during the summer; and species of *Cooperia* in the winter. *Bunostomum, Oesophagostomum, Chabertia,* and *Trichuris* were present, but the numbers were too low to indicate any trends.

—D. W. JOLLY.

COLGLAZIER, M. L. & TURNER, J. H. (1955). **An experiment on the cumulative efficacy of phenothiazine-salt mixture against *Nematodirus* and *Haemonchus* in lambs during a second grazing season.**—*Amer. J. vet. Res.* **16,** 558-562. [Authors' summary modified.] **881**

The continued use of free-choice medication with phenothiazine and salt during successive grazing seasons was useful in controlling combined natural *Haemonchus* and *Nematodirus* infections in lambs. Treated lambs, as compared with controls, had lower egg counts, fewer total worms, greater gains, better condition, and higher blood levels during the 2 trials. The lambs benefited more from the medication than lambs similarly treated during the previous season, indicating that the regimen achieves progressive decontamination of pastures in successive seasons. All treated lambs survived the exposure whereas 5 of 8 untreated lambs succumbed during the 2 trials. Comparable lambs, unexposed to gross parasitism and untreated, made the best gains during the 2 successive years.

SPREHN, C. (1955). Über die Bekämpfung der Magenwurmseuche (parasitäre Gastro-Enteritis) der Ziegen. **[Control of parasitic gastro-enteritis in goats.]**—*Dtsch. tierärztl. Wschr.* **62,** 165-168. **882**

It is suggested that in parasitic gastro-enteritis of goats appropriate anthelmintic treatment be combined with a thorough disinfection of the stable.—W. G. SILLER.

TEPPER, I. (1955). Príspevok k výskytu hystrichózy na Slovensku. **[*Hystrichis tricolor* in domestic and wild ducks in Slovakia.]**—*Vet. Čas.* **4,** 59-64. [In Slovak. Russian and German summaries.] **883**

H. tricolor, a stomach worm of aquatic birds was found P.M. in 10 domestic and 3 wild ducks. Incidence among domestic ducks was higher in spring and appeared to promote susceptibility to *Pasteurella* and *Salmonella* infection.—E.G.

KOTLÁN, S. & KASSAI, T. (1955). A juhok gócos tüdöférgességének orvoslása emetinhydrochloriddal. **[Treatment of lungworm infestation in sheep with emetine hydrochloride.]**—*Mag. állator. Lapja.* **10,** 289-296. [English and Russian summaries. Abst. from English summary.] **884**

Emetine hydrochloride administered i/m or s/c in a dose of 3 mg./kg. in a 1% aq. soln. followed by a second dose 2 days later caused a 95–100% reduction in the larvae output of sheep infected with *Cystocaulus* and *Protostrongylus* lungworms. The reduction usually set in abruptly on the 10th day after the first injection. Lungworms continued to live for 2–3 weeks following treatment, but in 9 treated sheep killed after 6–7 weeks only one live protostrongylid lungworm and one live larva could be detected.—M.G.G.

DUNN, D. R., GENTLES, M. A. & WHITE, E. G. (1955). **Studies on the pig lungworm (*Metastrongylus* spp.) I.—Observations on natural infection in the pig in Great Britain.**—*Brit. vet. J.* **111,** 271-281. [Authors' summary modified.] **885**

Of 1,722 pigs examined for lungworms *(Metastrongylus* spp.*)* at 3 bacon factories, 20·5% were infected. The pigs came from farms distributed widely throughout 11 counties of England and part of North Wales. The worms were mainly confined to the caudal end of the diaphragmatic lobe, and were usually present in only small numbers. The lesions appeared as lobular areas of emphysema, often accompanied by greyish lymphoid nodules.

Examination of faeces from pigs on 9 farms revealed lungworm eggs only once when

saturated saline was used for flotation, whereas infection was found in earthworms on 3 of the farms. The advantages of saturated magnesium sulphate solution ($MgSO_4,7H_2O$) are mentioned.

Examples are given which show that a high proportion of the pigs on infected farms harbour lungworms. Infective larvae can usually be detected with ease in earthworms on such farms.

The histopathological changes produced by lungworms are described briefly and illustrated.

BROWN, H. W. & CHAN, K. F. (1955). **The effect of piperazine-HCl on migrating larvae of *Ascaris suum* Goeze 1782.**—*Amer. J. vet. Res.* **16,** 613-615. [Authors' summary modified.] **886**

Piperazine hydrochloride administered orally to mice before and after they were fed infective ova of *Ascaris suum* prevented the hatching larvae from invading the blood stream and the lungs. Dosage with the drug after invasion of the blood stream by the larvae did not prevent invasion of the lungs and severe pneumonia. Intraperitoneal injections of piperazine-HCl had slight effect on the migrating larvae. There was no evidence that the drug, in the amount employed, was excreted in the milk in sufficient quantities to affect the newly hatched larvae in the intestine of unweaned mice.

SPRENT, J. F. A. (1955). **On the invasion of the central nervous system by nematodes. I. The incidence and pathological significance of nematodes in the central nervous system. II. Invasion of the nervous system in ascariasis.**—*Parasitology.* **45,** 31-40 & 41-55. **887**

I. This is a review of the various nematode species which gain access to the c.n.s. and the damage they cause. There are 85 references.

II. The brains of mice were examined for ascarid larvae 1–180 days after dosage with embryonated eggs of species of the genera *Toxocara, Toxascaris,* and *Ascaris.* The larvae of *Toxocara canis, T. mystax, Toxascaris transfuga, Ascaris devosi,* and *A. columnaris* were recovered from the brain, but not *A. lumbricoides, A. suum, A. equorum,* or *Toxascaris leonina.* The species *T. canis* were the most numerous. The migration of the larvae is discussed, and the pathology of the lesions caused in the c.n.s. is described.

—D. W. JOLLY.

BUŠA, V. (1955). Príspevok k dynamike výskytu mikrosetárií v krvi koní. **[Occurrence of microfilariae of *Setaria* in the blood of horses.]**—*Vet. Čas.* **4,** 99-109. [In Slovak. German & Russian summaries.] **888**

B. studied the effect of some environmental factors on the movements and numbers of microfilariae of *S. equina* in two horses. The incidence of microfilariae in jugular and capillary blood was highest in samples taken between 8–12 p.m. After midnight there was a drop in the number of microfilariae in capillary samples. There appeared to be a certain periodicity in the numerical fluctuations at intervals of a few days.

Atmospheric pressure appeared to affect the number of microfilariae—the higher the pressure the higher their number. At high pressure the capillary was twice that of the jugular count, whereas at low pressure this relationship was reversed.

At high environmental temperatures microfilarial counts were close to the minimum, but higher in jugular blood than in capillaries. At low temperatures the number was close to the maximum and smaller in jugular than in capillary blood samples.

Adrenaline, given s/c or i/v appeared to increase the number of microfilariae in samples.—E.G.

MOHIYUDDEEN, S. (1955). **Cerebrospinal nematodiasis among bovines in some Malnad tracts of Mysore State.**—*Curr. Sci.* **24,** 340-341. **889**

Microfilariae, ranging from 300–850μ in length, were demonstrated in brain and spinal cord tissue from four typical cases of bovine paraplegia, an enzootic seasonal condition among cattle in Mysore State. Lesions resembled those of necrotizing encephalomyelomalacia of goats in Ceylon, described by Innes [*V.B.* **22,** 472]. The role of blood-sucking arthropods in the aetiology of the condition is being investigated.—E.G.

KREIS, H. A. (1955). Beiträge zur Kenntnis parasitischer Nematoden. XVIII. Das Genus *Probstmayria* Ransom, 1907. **[Study of parasitic nematodes. XVIII. The genus *Probstmayria.*]**—*Schweiz. Arch. Tierheilk.* **97,** 422-433. [English, French and Italian summaries.] **890**

K. proposed that the genus *Probstmayria* should be removed from the family Kathlanidae and placed in the Oxyuridae in a new subfamily Probstmayriinae. He compared *P. vivipara* with a new species, *P. gorillae,* which

he described from the gorilla and the gibbon. It was smaller than *P. vivipara* and differed also in the morphology of the anterior end and spicules, and in the presence of a gubernaculum.—M. L. Clarke.

Dennis, W. R., Swanson, L. E. & Stone, W. M. (1955). **Experimental feeding of low level phenothiazine to Florida cattle.**—*Vet. Med.* **50,** 379-389 & 392. **891**

The administration of phenothiazine in various diets at a rate of 0·5 g. per 100 lb. body wt. per day controlled *Haemonchus contortus, Oesophagostomum radiatum* and *Bunostomum phlebotomum;* little effect was noted on species of *Cooperia, Trichostrongylus axei* or *Ostertagia ostertagi* and none on *Dictyocaulus viviparus, Fasciola hepatica, Cotylophoron cotylophorum,* species of *Moniezia* or *Strongyloides.* Pasture contamination was reduced. Heavily parasitized animals required therapeutic dosage prior to low level administration. Animals receiving no phenothiazine had a higher wt. gain than other groups in the trials. Limited data revealed a definite increase in the iodine content of the thyroid in animals given green phenothiazine.—D. Poynter.

Allcroft, R., Salt, F. J. & Hignett, S. L. (1955). **The effect of commercial phenothiazine on blood iodine values in sheep.**—*Vet. Rec.* **67,** 626-630. [Authors' summary slightly modified.] **892**

Analysis of various commercial preparations of phenothiazine revealed an iodine content ranging from 0·0004 to 0·4%. Administration of some of these preparations resulted in a marked rise in blood iodine values. The significance of these observations was discussed.

Blackwell, R. L. & Allen, R. W. (1955). **Effect of phenothiazine on conception rate in sheep.**—*Amer. J. vet. Res.* **16,** 563-564. [Authors' summary modified.] **893**

Phenothiazine treatment of ewes had no detrimental effects on the occurrence of oestrus, conception to first service, total pregnancies during the breeding season, or frequency of twinning. Forty-eight ewes were treated with phenothiazine, and 48 served as controls.

Antipin, D. N. (1955). **[The development of helminthology in the Soviet Union.]**—*Acta. vet. hung.* **5,** 11-27. [In Russian. German summary.] **894**

A survey of helminth parasites in every kind of domestic animal was carried out, and a great number of species of worms, never recorded before, were found and classified. The biology of many species was elucidated and methods to deal with worm infestation were evolved. A survey of anthelmintics that have proved their value is given.

—A. Mayr-Harting.

See also abst. **1068** (report, Mukteswar Vet. Res. Inst.)

SPONTANEOUS AND TRANSMISSIBLE NEOPLASMS AND LEUCAEMIAS [INCLUDING FOWL PARALYSIS]

Mulligan, R. M. (1955). **Hemangiopericytoma in the dog.**—*Amer. J. Path.* **31,** 773-789. **895**

An account of 68 tumours of dogs, with the structure of "haemangiopericytoma" as described by Stout and co-workers. All were solitary, and all except 2 were subcutaneous, the majority being situated on the extremities or trunk. Recurrence was noted in 13 instances, but no metastases were seen. The macroscopic and histological features are described in detail, and the differentiation from neoplasms with spindle cells of 3 other types—fibroblasts, leiomyoblasts and neurilemmoblasts—is discussed.—E. Cotchin.

Segre, D., Olson, C., Jr. & Hoerlein, A. B. (1955). **Neutralization of bovine papilloma virus with serums from cattle and horses with experimental papillomas.**—*Amer. J. vet. Res.* **16,** 517-520. [Authors' summary modified.] **896**

Horses with growths caused by the agent of bovine papilloma have neutralizing antibodies in their serum, whereas cattle with papillomas do not. Horses vary in their susceptibility to bovine papilloma. A heat-labile neutralizing factor was found in the blood serum of a comparatively resistant horse. A strain of bovine papilloma virus with low virulence for cattle was highly infective for the horse. Another strain with high virulence for cattle was of low infectivity for the horse.

See also abst. **1074** (advances in cancer research).

NUTRITIONAL AND METABOLIC DISORDERS

MORNET, P. (1955). Le Laboratoire Fédéral de l'élevage "Georges Curasson" de Dakar-Hann. Inauguration et Conférence sur "les problèmes alimentaires et al pathologie animale en milieu tropical". **[Inauguration of the Federal Laboratory of Animal Husbandry at Dakar. Conference on nutritional problems and animal pathology under tropical conditions.]**—*Rev. Élev.* **8**, 109-135. **897**

The Federal Laboratory of Animal Husbandry at Dakar was officially opened in Dec. 1954. M. described the laboratory and its work. Ten papers were read at a conference on nutritional problems and animal pathology, which followed the inauguration. [The text of 8 of these papers is reproduced in pp. 138–296 of the same issue of *Rev. Elev.*]

—D. POYNTER.

MCDONALD, M. W. & MCCLYMONT, G. L. (1955). **Studies on nutrition of poultry. VI. The effect of a simplified breeding ration on hatchability, and growth and viability of chickens.**—*Aust. vet. J.* **31**, 93-97. **898**

A simple ration of wheat, bran, pollard, and meat meal was supplemented with either riboflavin, riboflavin and vitamin B complex mixture (pantothenic acid, riboflavin, pyridoxin, thiamin, folic acid, and biotin), or riboflavin, whey powder and lucerne meal, and comparisons were made of hatchability, viability, and growth of chickens to three weeks of age. (Chickens were all reared on the same adequate ration). Hatchability on the unsupplemented basal ration was only 28·4% of fertile eggs, whilst with the addition of only 2·2 p.p.m. riboflavin it was 82·3%. No significant increase in hatchability was achieved with the other supplements. Differences in viability (basal ration excluded) were not significant. Growth rate was significantly, though not greatly, increased by the pure B vitamins, and the B-complex rich feeds.

—L. HART.

HEYWANG, B. W., BIRD, H. R. & ALTSCHUL, A. M. (1955). **Relationship between discolorations in eggs and dietary free gossypol supplied by different cottonseed products.**—*Poult. Sci.* **34**, 81-90. **899**

Pullets were fed for 36–51 days on diets containing cottonseed or cottonseed meal, equivalent to a free gossypol content of from 0·001–0·008%. Eggs laid were examined for green, brown or black discoloration of the yolk, attributed to the action of gossypol. Less than 1% of fresh eggs from pullets fed 0·001–0·005% gossypol were discoloured, but after storage in a refrigerator for 3–7 days, 5% of eggs from the same birds were found to be discoloured. Similarly, 5% of fresh eggs and 60% of stored eggs from birds given 0·008% gossypol were found to have discoloured yolks. Pink discoloration of the albumen was absent from fresh eggs, but developed in a small proportion of eggs after storage for 1–4 months.—R.M.

IVINS, J. D. (1955). **The palatability of herbage.**—*Herb. Abstr.* **25**, 75-79. **900**

A review article with a comprehensive bibliography in which is considered the definition and significance of palatability. The author discussed the investigations to date, the methods used to determine palatability, and the significance of results obtained.

—D. POYNTER.

SMITH, A. M. & REID, J. T. (1955). **Use of chromic oxide as an indicator of fecal output for the purpose of determining the intake of pasture herbage by grazing cows.**—*J. Dairy Sci.* **38**, 515-524. **901**

The average concentration of orally administered chromic oxide in faeces, taken twice daily from the rectum of grazing cows for 7 days, provided accurate estimates of the total faecal output. The conc. of the oxide in any one sample ranged from 64 to 141% of the weekly average.—W. S. MARSHALL.

BELL, J. M. (1955). **The nutritional value of rapeseed oilmeal: A review.**—*Canad. J. agric. Sci.* **35**, 242-251. **902**

Many workers have demonstrated the presence of toxic factors in rape-seed oil meal which affect the growth rates or the size of the liver, kidneys and thyroid glands of several animal species. Two goitrogens, 1-5-vinyl-2-thio-oxazolidone and isothiocyanates have been isolated from the oil meal. There is some evidence that the toxic factors may affect the hosts at the cellular level, interfering with oxidation and reduction reactions. Some success in counteracting or removing toxicity has been achieved by cooking, steaming, adding iodine or protamone, steaming and adding antibiotics, extracting with water, and limiting the amount of oil meal fed. The most practical method is the last. For poultry feeding it is inadvisable to use more than 10% rape-seed oil meal in the ration, while rape-

seed oil meal as one-third of the protein supplement in the feed of growing or finishing pigs is acceptable. Ruminants are apparently less susceptible to the toxic factors than other species.—A. GREIG.

I. SPISNI, D. & GARAVAGLIA, C. (1954). Influenza dell'alimentazione con foglie di cavolfiore (*Brassica oleracea*, var. *botrytis*) sul quadro ematologico nella capra e nelle pecora. **[Effect of feeding cauliflower leaves on the blood picture of sheep and goats.]** — *Ann. Fac. Med. vet. Pisa.* **7,** pp. 278-288. [English and French summaries.] **903**

II. SPISNI, D. & GARAVAGLIA, C. (1954). Variazioni istologiche della tiroide di ruminanti alimentati con foglie di cavolfiore. **[Histology of the thyroid gland of cattle fed on cauliflower (*Brassica oleracea*).]**—*Vet. ital.* **5,** 883-895. [English, French and German summaries.] **904**

III. SPISNI, D. & GARAVAGLIA, C. (1954). La presenza di tiocianati nella saliva di piccoli ruminanti. **[Thiocyanates in the saliva of ruminants fed on cauliflower leaves.]**—*Ibid.* 896-899. [English, French and German summaries.] **905**

I.—Feeding of cauliflower leaves to three sheep for 35 days led to an increase in the r.b.c., Hb., leucocytes and neutrophiles. In a pregnant goat, however, there was a reduction of r.b.c. and leucocytes with an increase of neutrophiles. In all the animals histological evidence of hypothyroidism was found, but no agranulocytosis was noticed.

II.—Examination of the thyroid glands from sheep and goats fed cauliflower leaves for 35–64 days revealed a marked increase in colloid and decrease of the follicular epithelium, suggesting a decrease of thyroid activity. It is concluded that the leaves may be fed to fattening animals, but not during growth or pregnancy.

III.—Analysis of saliva from sheep and goats fed cauliflower leaves revealed the presence of thiocyanates. Saliva from the same animals fed on an exclusive hay diet failed to reveal their presence.

—J. A. NICHOLSON.

MOLLGAARD, H. (1955). Den kvantitative vaekstmålings metodik. Virkningen af indre og ydre faktorer på vaekstprocesserne. **[Methods for the quantitative determination of growth. Effect of internal and external factors.]**—*Beretn. Forsøgslab. Kbh.* No. 282, pp. 190. [English summary.] **906**

Each cell contains a genetically-determined peptide chain serving as a model for new structures, and growth quotient will be a function of age. The physiological validity of the hyperbolic equation of growth rate is verified with regard to animal protein, calcium and phosphorus. Effects of vitamin deficiency, and of added antibiotics, are discussed, together with the physiological theory of the hyperbolic relationship.—F. R. PAULSEN.

JOHNSON, D. F. (1954). **A toxicity test of n-trichloromethylthio- tetrahydrophthalimide.** —*Sthwest. Vet.* **8,** 30-32. **907**

As a result of tests on 2 cows and 5 pigs, it was concluded that this fungicide is non-toxic in amounts that are likely to be consumed by feeding treated seeds.

—D. POYNTER.

FERGUSON, W. S. & TERRY, R. A. (1955). **Bloat investigations.**—*J. agric. Sci.* **46,** 257-266. [Authors' summary modified.] **908**

Oral or intravenous administration of the flavone quercetin, which inhibits the activity of smooth muscle, did not cause bloat even in the presence of cyanide. It is unlikely that flavones are concerned in bloat. Fractionation of bloat-provoking lucerne juice showed that activity was retained after (a) precipitation of choroplastic material, and (b) passage of clear juice through an anion or cation exchange resin. This suggests that the bloat-provoking factor is non-ionic and not absorbed on resins —properties showed by saponins. Lucerne saponins, 4 other saponins, egg albumen and a synthetic foaming compound failed to produce bloat in sheep. Two household detergents and a number of surface-active agents did not relieve bloat, but foam-breaking compounds were very effective. A synthetic inorganic saliva and cow's saliva did not prevent bloat in sheep. It was concluded that the formation of a stable foam is a major factor in lucerne bloat and that food constituents, other than saponins, and the physical condition of the rumen ingesta probably influence the stability of the foam.

RYDELL, R. O. (1955). **A new approach to bovine bloat therapy.**—*J. Amer. vet. med. Ass.* **127,** 74. **909**

R. described the successful use of up to 200 ml. of a proprietary preparation for i/v injection, containing calcium, magnesium and phosphorus, for the relief of bloat in 4 cows and speculated on the significance of concomitant improvement of the changes in the skin reflex syndrome in this and other conditions.—G. P. MARSHALL.

BRÜCKNER, H. (1955). Über die akute Epilepsie des Rindes. **["Acute epilepsy" in cattle.]**—*Tierärztl. Umsch.* **10,** 85-86. **910**

The symptoms and P.M. lesions are described of a condition in cattle characterized by epileptiform fits and collapse. Administration of sodium bicarbonate appeared to worsen the condition. Chloral hydrate with barbituric acid gave relief for a few hours, but did not prevent a relapse. Two cows recovered that were injected i/v with about 50 ml. of 30% magnesium sulphate solution and with a similar dose s/c, followed by daily administration of about half an oz. of magnesium oxide. B. suggested that the condition was due to a diet high in alkali.—M.G.G.

MORTON, R. K. (1955). **The substrate specificity and inhibition of alkaline phosphatases of cow's milk and calf intestinal mucosa.**—*Biochem. J.* **61,** 232-244. **911**

M. showed that the alkaline phosphatases purified from cow's milk and calf intestinal mucosa are true orthophosphate monoesterases. They were strongly inhibited by iodine and cysteine, but only slightly by other phosphoric compounds.—JOHN SEAMER.

FRANÇOIS, A. C. & MICHEL, M. (1955). Action de la pénicilline et de l'auréomycine sur les propriétes désaminantes de la flore intestinale du porc. **[Action of penicillin and aureomycin on the deaminating properties of the intestinal flora of pigs.]**—*C. R. Acad. Sci., Paris.* **240,** 124-126. **912**

Aureomycin and penicillin inhibited, *in vitro,* the deaminases of the intestinal flora of the pig and prevented the liberation of ammonia. This gave rise to speculation on the possible relationship between this phenomenon and growth stimulation by antibiotics.

—T.E.G.R.

NEWBERNE, J. W., BAILEY, W. S. & SEIBOLD, H. R. (1955). **Notes on a recent outbreak and experimental reproduction of hepatitis X in dogs.**—*J. Amer. vet. med. Ass.* **127,** 59-62. **913**

Dog meal was suspected as the cause of an outbreak of "hepatitis X disease" in dogs [a condition of unknown aetiology in the U.S.A.] during the autumn and winter of 1954–55. Feeding tests with five lots of the meal were, therefore, initiated. Some of the dogs under experiment developed symptoms of hepatitis (acute and subacute) and died or were killed *in extremis.* Macro- and microscopic changes similar to those seen in "hepatitis X disease" were observed.

—T.E.G.R.

I. ALEXANDER, D. P., ANDREWS, R. D., HUGGETT, A. ST G., NIXON, D. A. & WIDDAS, W. F. (1955). **The placental transfer of sugars in the sheep: Studies with radioactive sugar.**—*J. Physiol.* **129,** 352-366. **914**

II. ALEXANDER, D. P., HUGGETT, A. ST G., NIXON, D. A. & WIDDAS, W. F. (1955). **The placental transfer of sugars in the sheep: The influence of concentration gradient upon the rates of hexose formation as shown in umbilical perfusion of the placenta.** — *Ibid.* 367-383. **915**

I. It was shown that hyperglycaemia is not essential for fructose production by the placenta and that glucose molecules can pass from the foetus to the dam against a concentration gradient.

II. Placental perfusion was used to estimate the transfer of glucose across the placenta, the rate of production of fructose and the influence of hyperglycaemia on these placental functions.—D. POYNTER.

MEYER, J. H. (1955). **Influence of dietary levels of sodium chloride and protein on growth, nitrogen balance and body composition of the growing rat.**—*Amer. J. Physiol.* **182,** 83-88. **916**

Depression of growth caused by a high sodium chloride content (15%) in the ration was the same at three levels of casein (10, 25 and 40%). Gains in fat, water, nitrogen, sodium, potassium and ash were less than in controls. The weight of the gastro-intestinal tract plus its contents increased in rats on high NaCl intakes. Protein level had no influence on carcass water, Na and K contents. High NaCl intakes caused a small increase in water and Na content as measured in eviscerated rats. They also caused a lower fat content at higher casein levels and an increase in the Na content of the body. NaCl at 15% of the ration increased N digestibility, but retention was lowered.—D. POYNTER.

MAHADEVAN, V. (1955). **Impure salt and eczema in cattle.** — *Indian vet. J.* **32,** 19-23. **917**

Skin affections and indigestion reported in animals and human beings consuming salt made from pit brine were suspected to be due to the presence of nitrates, nitrites and excess of sulphates in such salt.—R. N. MOHAN.

INGLIS, J. S. S., JENNINGS, F. W., LAUDER, I. M., MULLIGAN, W. & WEIPERS, M. (1955). **The volume distribution of intravenously injected ^{24}Na in bovines.**—*Vet. Rec.* **67,** 765-768. [Authors' summary modified.] **918**

The authors described experimental techniques for determining the "radiosodium space" of cattle, using ^{24}Na, venous catheterization for the quantitative injection of solutions and for the withdrawal of multiple blood samples, and a syringe holder which gives remote control of the injection of radioactive solutions.

Results from cattle ranging from 3-week-old calves to adult cows were given. It was found that the radiosodium space in cattle, as in other species, is relatively greater in young animals. The general principles involved in "sodium space" and "exchangeable sodium" determinations were described.

GRUNSELL, C. S. (1955). **Marrow biopsy in sheep. II. Anaemia.**—*Brit. vet. J.* **111,** 473-480. [Author's conclusions copied *verbatim.*] **919**

Response of the haemopoietic tissue to haemorrhage is best seen in the bone marrow. Marrow biopsy is of considerable value in studying anaemia in sheep.

VAN CAMPENHOUT, E. & DEULIN, T. (1954). L'action de divers sels de cobalt sur les îlots endocrines du pancréas du cobaye. [**Action of cobalt on the islets of Langerhans.**]—*C. R. Soc. Biol. Paris.* **148,** 395-396. **920**

In g. pigs injected s/c with cobalt salts daily for 4 days the authors observed the formation of greatly enlarged islets of Langerhans with degranulation of the α cells and vacuolization of the acini.—A. SEAMAN.

HAWKINS, G. E., JR., WISE, G. H., MATRONE, G. & WAUGH, R. K. (1955). **Manganese in the nutrition of young dairy cattle fed different levels of calcium and phosphorus.**—*J. Dairy Sci.* **38,** 536-547. **921**

Five test diets, four experimental and one control, were fed to 15 calves. The basal diet contained less than 1 p.p.m. of Mn. Three other test diets were formulated by adding, respectively, manganous sulphate supplying 50 p.p.m. of Mn, 3–5% monocalcium phosphate and a combination of the preceding supplements.

Growth rates and serum Mg levels of the controls were greater than those of the test group.

Supplemental Mn did not affect the Ca and P levels, nor the activity of alkaline phosphatase, but it partially counteracted the deleterious effects of monocalcium phosphate on wt. gains during the latter stages of the feeding periods. It depressed serum Mg levels. It significantly increased Mn levels only when no supplemental monocalcium phosphate was given. It increased life span whilst monocalcium phosphate decreased it, but neither affected mortality which was 100% for calves fed experimental diets.

Calcified deposits were found P.M. in the cardiovascular and pulmonary system of calves in all test groups except those fed less than 1 p.p.m. of Mn.

The results suggest that the requirement of calves for dietary Mn is low and that increasing the levels of Ca and P in the diet intensifies the need for supplements of Mn.

—D. POYNTER.

SJOLLEMA, B., VAN KOETSVELD, E. E., GRASHUIS, J. & LEHR, J. J. (1955). Onderzoekingen over kopziekte II. [**Investigations into grass tetany. II.**]—*Tijdschr. Diergeneesk.* **80,** 1111-1134. [English, French and German summaries.] **922**

From further experiments in the autumn of 1953 with the same cows that were used in the spring experiments [*V.B.* **25,** 3752] the authors concluded that a critically low level of magnesium can be present in the serum for a long time without inducing tetany. The daily supply of 50 mg. MgO per cow for 11 days during this period caused an increase of the Mg content of the serum from 0·4 mg.% and below to 1·6mg.%. The oral administration of sodium or potassium salts resulted in a critically low Mg content of the serum and a high phosphorus content. The unbalanced state was not associated with illness, except in 2 cows in which the administration of sodium salts was followed by pulmonary emphysema and grass tetany respectively. The phosphorus content of the serum of normal cows was higher in autumn than in spring. This was probably due to the higher phosphorus content of the grass in autumn and the lower phosphorus requirement of the cows because of lower milk production.

—C. A. VAN DORSSEN.

PENNY, R. H. C. & ARNOLD, J. H. S. (1955). **Grass tetany in the ewe.**—*Vet. Rec.* **67,** 772-773. **923**

Three ewes with 4-week-old twin lambs were found in convulsions after a flock of 80 had spent 2 days on a 4th-year ley. One died

while being injected; the remaining two recovered after administration of a proprietary "milk fever" preparation and 20% magnesium solution. Calcium and magnesium blood levels before treatment were one third of the normal values and the inorganic phosphorus content was low.—A. SEAMAN.

BRÜGGEMANN, J. & NIESAR, K-H. (1955). Der Nachweis eines den Vitamin A-Gehalt der Milch beeinflussenden Faktors im Eutergewebe des Rindes. **[Presence in bovine udder tissue of a factor influencing the vitamin A content of milk.** — *Milchwissenschaft.* **10,** 223-225. [English, French and Italian summaries.] **924**

The authors demonstrated the presence, in udder tissue, of an enzyme, carotenase, capable of forming vitamin A from the β-carotene available in the blood. They found little or no carotenase activity in jejunal, renal and splenic tissues. It was concluded that this specific activity is concerned in the regulation of the vitamin A content of the milk.

—G. P. MARSHALL.

LUCAS, A., QUINCHON, C., FEUGEAS, C., HENRY, M., GOURDON, J.-M., GOURDON, R. & TOUCAS, L. (1955). Kératoconjonctivite, manifestation d'avitaminose A dans un troupeau de moutons. **[Keratoconjunctivitis, manifestation of vitamin A deficiency in a flock of sheep.]**—*Rec. Méd. vét.* **131,** 665-669. **925**

Fifty of a flock of 100 sheep developed ocular symptoms within a week of the first case. They had been maintained on a vitamin A deficient diet for 2 months. Bacteriological examination of the conjunctiva revealed a mixed flora of low pathogenicity. The condition was eliminated by oral administration of vitamin A and an improvement of the diet.

—A. SEAMAN.

KON, S. K., MCGILLIVRAY, W. A. & THOMPSON, S. Y. (1955). **Metabolism of carotene and vitamin A given by mouth or vein in oily solution or aqueous dispersion to calves, rabbits and rats.**—*Brit. J. Nutr.* **9,** 244-267. **926**

Whatever the form of dispersion, carotene injected into calves was only converted, if at all, into minimum amounts of vitamin A. Only half the dose of carotene injected in "tween" ever appeared in the blood of calves but it persisted for up to 10 days. When injected in aq. dispersion without "tween" it appeared in small quantities in the blood within 3–6 hours, being presumably liberated from a site of primary deposition. Carotene given by mouth was better absorbed and more efficiently converted into vitamin A from "tween" dispersion than from oily soln.

—D. POYNTER.

COWLISHAW, B. & BLAXTER, K. L. (1955). **Triorthocresyl phosphate and vitamin E metabolism in calves.**—*Proc. Nutr. Soc.* **14,** No. 2. p. iii. of Proceedings. **927**

The authors agree that triorthocresylphosphate (TOCP) interferes with the absorption of tocopherol from the gut. Despite this they conclude that when TOCP is added to rations containing minimal amounts of tocopherol it does not lead to muscular dystrophy, but to a neurological disturbance most probably associated with demyelination of motor nerves. Even massive doses of α-tocopheryl acetate do not reverse this effect.

—D. POYNTER.

MAREK, K. & WĘDRYCHOWICZ, S. (1955). Schorzenie mięśni u kacząt. **[Vitamin E deficiency as the cause of paralysis in ducklings.]** — *Méd. vét., Varsovie.* **11,** 619-620. **928**

An account of 3 outbreaks among ducklings 2–5 weeks old, with symptoms of various degrees of ataxia, inability to rise and general debility. The mortality rate was high. P.M. examinations revealed streaky discoloration of skeletal and in some cases also of cardiac muscles with histological evidence of hyaline degeneration. No evidence of bacterial or viral infection was found and there was a good response to α-tocopherol, even in severe cases, when given *per os;* parenterally, it was of no value.—M. GITTER.

LOEWI, G. (1955). **A lesion in the aorta of vitamin-deficient animals.**—*J. Path. Bact.* **70,** 246-249. [Author's summary copied *verbatim.*] **929**

Guinea-pigs and rabbits maintained on a diet deficient in vitamin E develop, after about 7 months, apparently specific lesions in the aorta. These consist of areas of necrosis, calcification and fibrosis, mainly confined to the media. Subendothelial fibrosis and nuclear palisading are other prominent features. Vitamin-E-deficient rats show no such aortic lesions.

FERGUSON, T. M., RIGDON, R. H. & COUCH, J. R. (1955). **A pathologic study of vitamin B_{12}-deficient chick embryos.**—*Arch. Path.*

60, 393-400. [Authors' summary modified.] **930**

The pathological changes occurring in chick embryos obtained from vitamin B_{12}-depleted hens are described. The lesions may be grouped into 4 categories: (1) decrease in size; (2) oedema and haemorrhages; (3) focal areas of necrosis in the liver, brain and spinal cord, and (4) a marked increase in fat in the parenchymatous tissues. The mechanism for the development of these lesions is unknown. The possible significance of these findings to the use of vitamin B_{12} in the treatment of neurological diseases is discussed.

SCHOOP, G. (1955). Vitamin-C-Mangel als Ursache von Hämatogalaktie ("Blutmelken"). **[Vitamin C deficiency as a cause of blood in the milk.]**—*Dtsch. tierärztl. Wschr.* **62,** 210-211. **931**

Sudden appearance of blood in the milk of a herd of 61 healthy cows ceased after a single i/m dose to each cow of 10 ml. of 5% ascorbic acid solution.—M.G.G.

SETCHELL, B. P. & MCCLYMONT, G. L. (1955). **Blood inorganic phosphorus and serum potassium in insulin hypoglycaemia in the sheep.**—*Aust. J. agric. Res.* **6,** 589-594. [Authors' summary modified.] **932**

Depression of blood inorganic phosphorus and of serum potassium, as well as of blood glucose, followed the injection of insulin by both the s/c and i/v routes. The depressions in blood inorganic phosphorus and serum potassium approx. paralleled those of the glucose with both routes of injection, but the blood inorganic phosphorus remained depressed for a much longer time than either blood glucose or serum potassium.

SETCHELL, B. P. & MCCLYMONT, G. L. (1955). **Reversal of the hypoglycaemia of fasted pregnant ewes.**—*Aust. vet. J.* **31,** 204-209. **933**

The efficacy of various treatments in reversing the hypoglycaemia of fasted pregnant ewes were compared. Glycerol by mouth (3 ml./kg. body wt.), adrenocorticotrophic hormone subcutaneously (40 I.U.) and cortisone intramuscularly (200 mg.) all reversed the hypoglycaemia for about 24 hours. Glucose solutions subcutaneously (3 ml. of a 60% soln./kg. body wt.) produced a hyperglycaemia for 18 hours. Exercise produced hyperglycaemia for a few hours. Adrenaline hydrochloride (10 mg.) subcutaneously, adrenaline intramuscularly, as a suspension in water or in oil, produced hyperglycaemia for 12, 8 and 18 hours, respectively. Relating these findings to the treatment of pregnancy toxaemia it is suggested that exercise or adrenaline may be of value in early cases where good feed is available and liver glycogen reserves are likely to be good. Daily doses of glycerol (4 oz. by mouth) are recommended for sheep on a low plane of nutrition.—D. C. BLOOD.

VOLOSKOV, P. A. & RUBENKOV, A. A. (1954). **[Pathogenesis, prophylaxis and treatment of milk fever in cows.]**—*Veterinariya, Moscow.* **31,** No. 12, pp. 38-44. [In Russian.] **934**

The authors suggested that milk fever in cows should be regarded as a disturbance in the functioning of the cerebral cortex. All symptoms are those of depression. The ratio of lymphocytes to polymorphonuclear cells, the "haemo-cytological index", is smaller than 2 : 1; the blood pressure is low; the water balance of the tissues is disturbed; the peristalsis of the intestines is suppressed; and the animals are somnolent. Prophylactic measures must aim at a regulation of the water balance and improvement of the tonus of nerves and vessels. The first is attained by giving the cows dry food for two weeks before parturition, and warm salt water to drink immediately after; the latter, by giving the animals regular exercise till shortly before parturition.—A. MAYR-HARTING.

BLOOD, D. C., HUTCHINS, D. R. & DUNSMORE, J. D. (1955). **The use of calcium laevulinate solution in the treatment of milk fever in dairy cows.**—*Aust. vet. J.* **31,** 245-246. **935**

Calcium laevulinate soln. was used in the treatment of 11 cases, each of which was given 500 ml. of 13% solution, 9 receiving the full dose i/v and the remainder receiving a portion of the dose s/c. Clinically the results were as good as would have been expected with calcium borogluconate. No untoward effects were noted after the s/c injections.

—R. D. BARRY.

HOFLUND, S., NORDSTRÖM, G. & HALLGREN, W. (1955). Acetonämibehandling med natriumpropionat. **[Treatment of ketosis with sodium propionate.]**—*Nord. VetMed.* **7,** 809-825. [In Swedish. English and German summaries.] **936**

Acetonaemia in cattle responds rapidly to administration of sodium propionate, as shown by a quick return to normal of blood sugar and

acetone, and general condition. Good hay, wheat bran, molasses, rolled oats, barley and silage favoured the formation of propionic acid in the rumen.—F. R. PAULSEN.

REBER, E. F. & SCHOETTLE, C. E. (1955). **The use of sodium ethyl oxalacetate in the treatment of hypoglycemia and ketonemia in the ruminant.** — *Cornell Vet.* **45,** 548-555. [Authors' summary modified.] **937**

Pregnancy disease was induced in sheep by fasting. Sodium ethyl oxalacetate was administered orally to those with ketone bodies in the blood. This decreased the ketone bodies and increased the blood sugar. The lymphocyte-neutrophile ratio and the percentage of eosinophiles decreased as the ketone bodies increased. These data indicated increased adrenal cortical activity and revealed that ketosis is fundamentally due to hypoglycaemia.

JOHNSON, R. B. (1955). **The effects of the administration of acetic, propionic, and *n*-butyric acids upon the blood glucose and ketone body levels of goats.**—*Cornell Vet.* **45,** 273-290. [Abst. from author's summary.] **938**

The results were consistent with the generally accepted mechanisms of metabolism. Acetic acid and *n*-butyric acid formed ketone bodies. Propionic acid counteracted the formation of ketone bodies and caused a marked increase in the blood glucose level.

See also abst. 773 (effect of feeding on ovine foot rot).

DISEASES, GENERAL

WEBSTER, W. (1955). **The threat of exotic diseases to our animal industries.**—*Qd agric. J.* **81,** 36-40. **939**

Australia's freedom from some of the major infectious diseases of animals and birds is pointed out and the means by which their entrance is prevented are discussed. Particular reference is made to the air transport of immigrants to work on farms and to the importance of imported foods as possible means whereby the quarantine barrier might be broken down.—D. C. BLOOD.

OLSON, C., JR. (1955). **Infections with mixed etiology.**—*Amer. J. vet. Res.* **16,** 458-462. **940**

A general article on diseases such as fistulous withers, colibacillosis in calves, swine erysipelas etc., which are possibly due to the combined action of two or more causal agents. —T.E.G.R.

JIŘINA, K. (1955). Corpora libera in der Bauchhöhle der Haustiere. **[Corpora libera (unattached masses of fatty or fibrous tissue —Ed. *V.B.*) in the abdominal cavity of domestic animals.]**—*Mh. VetMed.* **10,** 75-76. **941**

J. described corpora libera found in pigs, cows and a fowl. As an explanation of their origin, he suggested bleeding caused by enucleation of the corpus luteum and removal of ovarian cysts in cows, loose glandular tissue following castration in gilts, and a broken off stalked neoplasm in the fowl.—M.G.G.

I. DUMIĆ, A. (1955). Odnos ždrebećaka prema zaraznom kašlju kod konja. **[Strangles and epidemic cough in horses.]**—*Vet. Glasn.* **9,** 426-438. [In Croat. German summary.] **942**

II. TURUDIĆ, V. (1955). Epizootija zaraznog kašlja kod konja jedinice stacionirane u garnizonima A., B., C., D., E. od maja do Oktobra 1954 godine. **[Epidemic cough in Yugoslav army horses.]**—*Ibid.* 439-444. [In Croat. German summary.] **943**

I. D. reported on 2 outbreaks of epidemic cough and 8 outbreaks of strangles in Yugoslav army horses. He stated that the 2 diseases were separate entities epidemiologically, clinically and bacteriologically. Epidemic cough is a virus disease and does not respond to penicillin and sulphonamides. He discussed the role of haemolytic streptococci and *Salmonella abortus-equi* in later stages of epidemic cough.

II. T. reported on outbreaks of equine epidemic cough in 5 garrisons, which probably originated from direct or indirect contact with civilian-owned horses. The outbreaks were of an explosive nature and spread rapidly. He stated that during one outbreak a horse may become infected twice or even a third time. —E.G.

TUTT, J. B. & LOVING, C. (1955). **Tickborne fever in dairy cattle.** — *Vet. Rec.* **67,** 866. **944**

In a tick-infested area a few cases of diminished milk yield, inappetence and fever were seen in Shorthorn cows. Blood was negative for babesia but positive for rickettsia. The authors maintained that the condition was tickborne fever.—JAS. G. O'SULLIVAN.

HOLMAN, H. H. (1955). **The blood picture of the cow.**—*Brit. vet. J.* **111,** 440-457. [Author's summary modified.] **945**

The averages and distribution of the morphological constituents and physical properties of blood samples from 81 Ayrshire cows are tabulated. After comparison with the work of other authors the following figures are suggested as averages for several European breeds living in temperate zones of Europe and America. Hb. 11 g./100 ml.; packed cell vol. 35%; mean corpuscular Hb. conc. 33%; r.b.c. 6 × 10^6/cu. mm.; specific gravity (whole blood) 1052; mean corpuscular vol. 57 cu.μ; mean corpuscular diam. 5·7μ; coagulation time 6 min.; percentage proportions of leucocytes: neutrophiles 30, lymphocytes 52, monocytes 7, and eosinophiles 11.

Correlations between erythrocytic measurements are given as a table and the results suggest that where Hb estimation cannot be made the packed cell vol. or s.g. estimations give a better estimate of anaemia than the r.b.c. count. Differences in blood picture between the sexes are considered unproven, but a stress reaction is apparent at parturition and oestrus. Variation due to breed and environment is discussed and some indication of individual variation is included in a table.

Clin. standards are suggested for European breeds over 2 years old and living in temperate climates. Pathological anaemia is indicated by Hb values below 8 g./100 ml.; 7 g. denoting a mild, 5 or 6 g. a moderate, and 4 g. a severe anaemia. Hypochromia is indicated where the mean corpuscular Hb conc. is below 24%; a value of 18% indicating moderate and 14% severe hypochromia. Ranges for corpuscular size vary and do not permit precise criteria for microcytosis or macrocytosis. Anhydraemia is indicated by packed cell vol. values of over 50%.

A leucocytosis (either pathological or physiological) is indicated by leucocyte counts over 13 × 10^3/cu. mm. and a severe leucocytosis can amount to 30 × 10^3/cu. mm.; leucopenia is indicated by counts below 4 × 10^3/cu. mm.; moderate leucopenia by counts of 2 × 10^3 cu. mm. and in severe leucopenia counts as low as 1 × 10^3/cu. mm. are seen. Some other clin. abnormalities are discussed.

DESBULEUX, (1954). L'hématurie essentielle serait-elle due à une carence en prothrombine? **[Is chronic bovine haematuria due to a deficiency of prothrombin?]**—*Bull. Agric. Congo belge.* **45,** 1311-1314. [Flemish summary.] **946**

D. found the coagulation time unreliable for the diagnosis of bovine haematuria and that the prothrombin time did not correlate with the appearance of haematuria. He concluded that deficiency of vitamin K was not an adequate explanation of bovine haematuria.—G. FULTON ROBERTS.

I. JANSEN, J., KUNST, H. & VAN EGMOND, P. J. D. (1955). Een geval van stomatitis, met algemeen ziek zijn, onder jonge runderen. **[An outbreak of stomatitis, accompanied by systemic symptoms, in young cattle.]**—*Tijdschr. Diergeneesk.* **80,** 853-857. [English, French and German summaries.] **947**

II. COHEN, P. (1955). Een geval van stomatitis, met algemeen ziek zijn, onder jonge runderen. **[Remarks on the article "An outbreak of stomatitis in cattle" by Jansen *et al.*]**—*Ibid.* 1147-1149. **948**

I. A preliminary report on an outbreak of papular stomatitis of unknown aetiology in 2 heifers and 6 calves in the same herd. P.M. findings were stomatitis, emaciation, enlargement of the spleen and kidneys, proliferative inflammation of the bile ducts and intestinal catarrh. The disease was transmitted to two experimental calves by inoculating a suspension of oral epithelium treated with antibiotics; from these it was passaged in 2 further calves. A third passage in calves was made, using a filtrate of material from the second passage.

II. C. compared the disease described above with cases of hyperkeratosis observed in Israel.—C. A. VAN DORSSEN.

DEKKER, N. D. M. (1955). Een onderzoek naar de bruikbaarheid van de Sulkowitch test als diagnosticum bij traumatische gastritis. **[Investigation into the value of the Sulkowitch test as a diagnostic aid in traumatic gastritis.]** — *Tijdschr. Diergeneesk.* **80,** 656-661. [English, French and German summaries.] **949**

In 32 out of 50 cattle affected with traumatic gastritis the reaction to the Sulkowitch test was negative, but similar results were obtained in 38 out of 50 affected with other diseases. There was only a partial correlation between the negative Sulkowitch test and a decreased serum calcium level.

—C. A. VAN DORSSEN.

BRION, A. & COTTEREAU, P. (1954). Sur l'existence en France de la rhinite atrophique

du porc. Confirmation expérimentale. [**Experimental confirmation of porcine atrophic rhinitis in France.**]—*Bull. Acad. vét. Fr.* **27,** 423-428. **950**

Atrophic rhinitis was produced in a litter of pigs inoculated intranasally during the first week of life with nasal material from an outbreak in France.—J. T. Done.

Schofield, F. W. (1955). **The cat as a carrier of atrophic rhinitis infection of swine.**—*Vet. Rec.* **67,** 704. **951**

A case is recorded in which a cat is believed to have passed the disease from one lot of pigs to another. A pasteurella organism was isolated and said to be the cause of the condition.—W. S. Marshall.

Boulanger, P. & Gwatkin, R. (1955). **Complement-fixation tests on swine serum. II. In the demonstration of *Pasteurella multocida* antibodies in experimentally produced rhinitis.**—*Canad. J. comp. Med.* **19,** 276-279. **952**

The role of *Past. septica* in experimentally produced atrophic rhinitis of pigs was studied by means of a c.f. test designed for the demonstration of pasteurella antibodies in the blood serum. It was found that while 32 of 52 pigs that had been exposed to the disease had lesions, 44 of them were reactors to the c.f. test. Of the 32 pigs which had lesions 27 were reactors as compared with 17 of the 20 with no visible lesions. *Past. septica* was isolated from 7 reactors which had lesions. Five pigs which had been exposed by contact and which had lesions were negative to the c.f. test, either because the test was not sensitive enough, or these individuals were unable to develop antibodies, or because in them the rhinitis was caused by some other agent. All control animals were negative culturally and serologically.—A. S. Greig.

Gdovin, T. (1955). K fyziologickej a patologickej anémii prasiatok. [**Anaemia in piglets.**]—*Vet. Čas.* **4,** 6-21. [In Slovak. Russian and German summaries.] **953**

An account of successful treatment of anaemia in two litters of piglets with a preparation containing iron gluconate and ascorbic acid.—E.G.

Pavuna, H. (1955). Hepatitis enzootica porcellorum kao razlog masovnog ugibanja prasadi na svinjogojstvu beničanci poljoprivrednog dobra "tovljač" iz osijeka. [**Hepatitis in piglets in Yugoslavia.**] — *Vet. Glasn.* **9,** 463-470. [In Croat.] **954**

Hepatitis in piglets causing 160 deaths within 6 days was attributed to over-eating of meat from dead pigs and horses. There were degenerative lesions in the liver, and jaundice. Treatment in survivors included fasting, followed by a barley and bran diet for a few days and iron sulphate, 0·002% in the drinking water.—E.G.

Anton, O. (1953). Die Blutsenkungsprobe beim Schwein unter Berücksichtigung der Toxizität des Darminhaltes. [**The blood sedimentation test in pigs in relation to toxicity of intestinal content.**]—*Inaug. Diss., Munich.* pp. 56. **955**

In 170 slaughter pigs the sedimentation rate of the blood was tested and found to be increased in TB. and if the duodenum contained *Bact. coli.* All the mice which were inoculated with duodenal content in which *Bact. coli.* was present died, as compared with 7% of those inoculated with *Bact. coli*-free duodenal content.—W. G. Siller.

Detweiler, D. K. (1955). **Clinical aspects of canine cardiology.**—*Vet. Ext. Quart. Univ. Pa.* No. 137, pp. 39-62. **956**

A detailed account of the diagnosis of heart disease in dogs by physical examination and roentgenography, with some notes on the treatment.—M.G.G.

Bauer, T. (1955). Ein Liquor-Befund bei der Myositis eosinophilica des Hundes. [**Examination of the cerebrospinal fluid in eosinophilic myositis in an Alsatian dog.**]—*Dtsch. tierärztl. Wschr.* **62,** 164-165. **957**

Examination of the c.s.f. from a 3-year-old Alsatian dog with eosinophilic myositis revealed the presence of numerous cocci as well as living diplococci. Tests for pneumococcal types proved negative.—M.G.G.

Löliger, H.-C. (1955). Histologische Untersuchungen an der Leber von Hühnern mit nichtinfektiösen Darmentzündungen. [**Histology of the liver of fowls with non-infectious enteritis.**]—*Dtsch. tierärztl. Wschr.* **62,** 273-279. **958**

Non-infectious enteritis of fowls following parasitic infestation or damage to the alimentary canal is often accompanied by non-specific hepatitis. Toxins may be carried to the liver *via* the portal vein or the bile duct. Intoxication by the former route is characterized by degeneration and oedematous swelling

of the portal vein, serous hepatitis and focal loss of argentophile fibres, while in the latter cases the typical findings are infiltration of inflammatory cells and proliferation of lymphoid and myeloid cells around the bile ducts.—W. G. Siller.

Egerer, E. (1955). Beitrag zur Ätiologie und Pathogenese der Zehenballengeschwulst des Huhnes unter besonderer Berücksichtigung der histopathologischen Veränderungen. **[Aetiology and pathogenesis of bumblefoot in fowls.]** — *Inaug. Diss., Munich.* pp. 28. **959**

An account of the histology of the lesions of bumblefoot in the fowl, based on the examination of 30 cases, from a number of which *Bact. coli* was isolated in pure culture. Attempts to set up the condition in healthy fowls were unsuccessful and the aetiology remains unknown.—W. G. Siller.

Carnaghan, R. B. A. (1955). **Atheroma of the aorta associated with dissecting aneurysms in turkeys.**—*Vet. Rec.* **67,** 568-569. [Author's summary modified.] **960**

C. described a dissecting aneurysm of the posterior aorta in 7 out of a group of 100 turkeys, associated with the formation of an atheroma.

Gibson, E. A. & de Gruchy, P. H. (1955). **Aortic rupture in turkeys subsequent to dissecting aneurysm.**—*Vet. Rec.* **67,** 650-654. [Abst. from authors' summary.] **961**

This condition occurs predominantly in well-grown male turkeys about 12–24 weeks old, and is associated with the presence of defects of the artery wall. Dietary factors may be involved.

Michaelson, S. (1954). **The use of beta irradiation in veterinary ophthalmology.**—*Vet. Med.* **49,** 475-478. **962**

Strontium 90 is considered suitable for veterinary ophthalmology because it emits pure beta rays (most of which are absorbed in the first 3 mm. of tissue and there is, therefore, no danger of damage to underlying structures). It is also easy to handle and has high chemical purity and specific activity. A 50 millicurie source of Sr^{90} is used. This has an active diameter of 7·8 mm. and an overall diameter of 12·7 mm. and is mounted on the end of a $6\frac{3}{4}$ inch shaft. A circular plastic shield $\frac{1}{4}$ inch thick and 4 inches in diameter is also mounted on the shaft, along which it can be moved to any desired position; this will stop virtually all of the radiation emitted by the source.

The conditions in which this type of therapy seems to be indicated are:— superficial tumours; pterygia; vascularization of the cornea and corneal ulcers. The patient is placed under a general anaesthetic and local anaesthesia is used to abolish corneal reflexes. —T.E.G.R.

Rust, J. H., Trum, B. F., Heglin, J., McCulloh, E. & Haley, T. J. (1954). **Effect of 200 roentgens fractional whole body irradiation in the burro.** — *Proc. Soc. exp. Biol., N.Y.* **85,** 258-261. **963**

Ten donkeys were exposed to 200 r Co^{60} gamma ray whole body irradiation daily. The following effects were produced: a progressive listlessness which later changed to "pseudoeuphorism"; temp. fluctuations reaching a peak (37·8°–39·5°C.) on the 13th day and then dropping below normal: anorexia and reduced water intake commencing on the 8th day and persisting until death; an average loss of 2·98 kg. body wt. per day; ulceration of the mouth, swelling of the face, salivation, twitching of the lips and malodorous breath; decreased coagulability of the blood; involvement of the c.n.s. giving rise to aimless, incoordinate locomotion, a stilted gait and hyperaesthesia.

There were no marked changes in the haemoglobin and in the r.b.c. count; there was a progressive leucopenia and a slow diminution of platelets which became more rapid after the 11th day. The plasma iron rose markedly within an hour after the third dose, reaching its highest level on the ninth day after which there was a slight progressive decrease. In one case death occurred 140 hours after the first irradiation. The rest of the animals died after 2,800–3,200 r had been administered.

The above results were found to be similar to, but slower than, those obtained with 400 r daily.—T.E.G.R.

Baum, S. J., Kimeldorf, D. J. & Jacobsen, E. M. (1955). **Effect of repetitive exposures to gamma rays on the hematopoietic system of the rat.**—*Blood.* **10,** 926-932. [Interlingua summary. Authors' summary modified.] **964**

Rats were subjected to one or more doses of 75 r gamma irradiation, at 7-day intervals between exposures. Haematological examinations were made following the last exposure. The maximum changes observed were, to a

great extent, independent of the number of exposures, and appeared to reflect principally the effects of the last irradiation. These results were ascribed to the regenerative capacity of the haematopoietic system.

NEUMANN-KLEINPAUL, K. (1955). Über die Messung der Hauttemperatur für diagnostische Zwecke. **[Measurement of skin temperature for diagnostic purposes.]**—*Berl. Münch. tierärztl. Wschr.* **68,** 89-. **965**

A localized increase in skin temperature may indicate the presence of an acute inflammatory process in the deeper tissues lying below that area. By means of a newly modified instrument such temperature variation may now be recorded with an accuracy of 0·1°C.—W. G. SILLER.

See also abstr. **1075** (book, pig diseases); **1079** (book, connective tissue in health and disease).

POISONS AND POISONING

BUCY, L. L., GARRIGUS, U. S., FORBES, R. M., NORTON, H. W. & MOORE, W. W. (1955). **Toxicity of some arsenicals fed to growing-fattening lambs.**—*J. Anim. Sci.* **14,** 435-445. **966**

3-Nitro-4-hydroxyphenylarsonic acid (I) was incorporated as 0·05, 0·1, 0·2 and 0·4% of the diet. Arsanilic acid (II) and potassium arsenite (III) were fed at levels giving an arsenic content equal to I. One lamb and one mature ewe was maintained on each level. Diet I proved the most palatable and least toxic even though greater quantities were ingested; diet II produced convulsions and diet III was the least palatable. All caused liver and kidney damage. Figures for arsenic levels in the tissues are given.—A. SEAMAN.

ANON. (1955). **Toxic chemicals in agriculture. Risks to wild life. Report to the Minister of Agriculture, Fisheries and Food and to the Secretary of State for Scotland, of the Working Party on precautionary measures against toxic chemicals used in agriculture.** pp. 31. London: H.M. Stat. Off. 1s. 6d. **967**

The authors were hampered by a dearth of precise information, but came to the following conclusions:— The total number of casualties to wild birds and mammals caused by spraying is not high. The most dangerous sprays, in order of danger, are organophosphorus insecticides on brassicas in late summer; arsenical compounds used for potato haulm destruction in September; dinitro weedkillers on corn and peas in spring and July; and D.D.T. on orchards, carrots and peas. Dinitro weedkillers, if used with care and as early as possible in the season, will not cause heavy casualties. The hormone weedkillers are of low toxicity, but make poisonous plants such as ragwort appetising to livestock. In windy conditions covers should be used over spray booms.

Care should be exercised in the use of rodenticides. The need for more research was stressed, particularly in the effects on insect populations.—M.G.G.

FENTON, J. C. B. (1955). **The nature of the paralysis in chickens following organo-phosphorus poisoning.**—*J. Path. Bact.* **69,** 181-189. [Author's summary modified.] **968**

F. described the distribution of the damage to the nervous system in fowls following di - isopropyl - fluorophosphonate (D.F.P.) poisoning; his findings confirmed those of Barnes & Denz [*V.B.* **24,** 2890]. He found no evidence to support the belief that the paralysis which follows the administration of D.F.P. results from the primary demyelination of the nerve sheath. The distribution of the damage to the nervous system can be explained on the basis of a degeneration of the long nerve fibres and it is suggested that this in turn results from depression in the metabolism of the neurone. The general features of the paralysis resemble those of a nutritional deficiency.

FONTANELLI, E. (1955). Su due casi di avvelenamento nel bovino da estere dell'acido tiofosforico (Tipo E. 605). **[Poisoning in cattle by parathion.]**—*Zooprofilassi.* **10,** 486-492. **969**

Investigation into the sudden deaths of two cows revealed petechial haemorrhage in the viscera, muscles, etc. with parenchymatous degeneration of the liver and kidneys and congestion of the mucous membranes. Poisoning was suspected and analysis of the viscera revealed the presence of a thiophosphoric acid ester known as parathion. This substance is used as a plant spray, but these cases of poisoning show that it must be used with caution and only applied at the recommended rate.—J. A. NICHOLSON.

HAMILTON-DICK, G. (1955). **Gammexane poisoning in horses.**—*J. R. Army vet. Cps.* **26,** 92-94. **970**

After eating contaminated bran, 5 ponies became affected with benzene hexachloride poisoning, from which 2 died. They showed tetanic spasms, great pain, sweating, laboured breathing, violence, and, in 3 cases, colic. P.M. findings were haemorrhage of the mesenteric lymph nodes and mesentery, diffuse areas of inflammation on the intestinal wall, fibrinous exudate between the stomach and diaphragm, blood tinges in the pericardial fluid, friability of the kidney and liver and petechial haemorrhages in the myocardium.—M.G.G.

MCCARROLL, P. J. (1955). **Warfarin poisoning in pigs. I.**—*Irish vet. J.* **9,** 232-234. **971**

HUNTER, W. M. D. (1955). **Warfarin poisoning in pigs. II.**—*Ibid.* 234-235. **972**

MCERLEAN, B. A. (1955). **Warfarin poisoning in pigs. III.**—*Ibid.* 235-236. [Absts. from authors' summaries.] **973**

I.—An account of 3 outbreaks of warfarin poisoning in pigs, caused by a commercial pig meal which had been contaminated at the mill, in a mixer previously used for warfarin rat-bait.

II.—Pigs of various ages were poisoned following ingestion of pig meal contaminated with warfarin. Young pigs 10 to 12 weeks old showed symptoms after eating the contaminated meal for 3–4 days; pigs 4 months old showed symptoms after eating the meal for 4–6 days; sows did not show symptoms for approx. 8–10 days after first eating the meal. One sow did not show symptoms until the 6th day after withdrawal of the meal.

III.—P.M. lesions are described in a pig, which died after the ingestion of pig meal that had been contaminated with warfarin during the milling process. Details are given of toxicity tests on one pig and 4 guinea-pigs using the contaminated pig meal.

BOUCKAERT, J. H., OYAERT, W. & WIJVERKENS, H. (1955). X-disease bij het rund. **[Hyperkeratosis in cattle in Belgium.]**—*Vlaam. diergeneesk. Tijdschr.* **24,** 205-209. [In Flemish. English, French and German summaries.] **974**

Hyperkeratosis in a calf, 11 months old, was apparently caused by contact with or ingestion of chlorinated naphthalene wood preservative.—R.M.

SCHOPEN, H., SCHULTE, F. & FLEISCHER, R. (1955). Über das Auftreten schwerer Ferkelerkrankungen (toxische Leberdystrophie) in Ställen mit teerhaltigen Fussbodenplatten. **[Toxic liver dystrophy in piglets from sties with tar-impregnated flooring slabs.]**—*Dtsch. tierärztl. Wschr.* **62,** 49-53. **975**

Typical toxic liver dystrophy was seen in piglets in 13 large piggeries, after the laying of new floors composed of tar-impregnated insulating slabs bound with bitumen. Controlled experiments proved that tar was the cause of the disease.—R.M.

WINTERINGHAM, F. P. W. (1955). **The fate of labelled insecticide residues in food products. IV. The possible toxicological and nutritional significance of fumigating wheat with methyl bromide.**—*J. Sci. Fd. Agric.* **6,** 269-274. **976**

W. concluded that amounts of toxic substances in wheat fumigated with methyl bromide were too small to cause poisoning, and that there was no reduction in the nutritive value of fumigated wheat.—R.M.

PEREK, M. (1955). **[*Claviceps paspali* in pasture as a cause of poisoning in cattle in Israel.]**—*Refuah vet.* **12,** 55-62. [In Hebrew.] 110. [In English.] **977**

P. described poisoning with *C. paspali* in cattle grazing pastures containing *Paspalum dilatatum.* This grass is now being used on an increasing scale in Israel as more land comes under artificial pasture.—A.S.

LAPČEVIĆ, E. & PETROVIĆ, M. (1955). Trovanje konja lucerkom—*Medicago sativa.* **[Lucerne (*Medicago sativa*) poisoning in horses.]**—*Vet. Glasn.* **9,** 422-425. [In Croat. German summary.] **978**

An account of lucerne poisoning in 50 horses. Apart from increase in temperature, pulse and respiratory rate, there was cardiac arrhythmia, tachycardia and also dyspnoea. In some horses there were nervous symptoms, photophobia, damage to the liver parenchyma and jaundice. In two the condition closely resembled periodic opthalmia. Treatment was symptomatic.—E.G.

PAYNE, W. J. A. & NAIDU, R. K. (1955). **The toxicity of creeping indigo (*"Indigofera endecaphylla"*).**—*Agric. J., Fiji.* **26,** 1-3. **979**

Of 4 groups of 8-week-old chicks, 16 in each group, 2 groups were given creeping indigo meal, one group at the rate of 5% of their diet, and the second at the rate of 10%. There were 2 deaths in the first group; chicks

in the second definitely grew more slowly, but showed no symptoms of toxicity. The experiment, which was regarded as inconclusive, was ended by an outbreak of cannibalism after 3 weeks.—M.G.G.

COCKBURN, R. S., EATON, G., HUDSON, J. R., MORGAN, K. G., WOOD, E. C. & WORDEN, A. N. (1955). **Acute poisoning of cattle by common ragwort** (*Senecio jacobaea*, **L.**)—*Vet. Rec.* **67,** 640. **980**

Out of 65 Friesian in-calf and maiden heifers, 34 died in 2 months, and 9 in a further 6 months, following the consumption, over a short period, of cubes of lucerne meal contaminated with ragwort.

The principal symptoms, appearing within 5–10 days after the first ingestion of the cubes, included acute diarrhoea, persistent straining, staggering, partial blindness and excitability. P.M. examination revealed inflammation of the abomasum, and in later cases a progressive degree of hepatic cirrhosis. —M.G.G.

See also abstr. **948** (stomatitis of unknown aetiology resembling hyperkeratosis); **954** (hepatitis in piglets); **1021** (particle size and toxicity of ANTU).

PHARMACOLOGY AND GENERAL THERAPEUTICS

(For treatment of specific infections see under the appropriate disease).

RADISSON, J. J., BARTLEY, E. E., FOUNTAINE, F. C. & ATKESON, F. W. (1955). **Aureomycin in the saliva of dairy calves after intramuscular injection of the antibiotic.**—*Science.* **122,** 514-515. **981**

The authors detected aureomycin in saliva for at least 8–12 hours after i/m injections. They pointed out that the antibiotic would also pass to the rumen where the microflora might be affected.—D. POYNTER.

POULSEN, E., SIMESEN, M. & SKUDE, I. M. (1955). Om penicillinbehandling af hunde. **[Penicillin therapy in dogs.]**—*Nord. VetMed.* **7,** 1-14. [In Danish. English and German summaries.] **982**

An account of the effects of procaine, aluminium stearate, and dibenzylethylenediamine dibenzyl penicillin upon penicillin injections in dogs. Concentration in blood and duration of effect were measured, and excretion examined. The authors suggested certain guiding principles for penicillin therapy in dogs.—F. R. PAULSEN.

ROLLE, M. & MAYER, H. (1955). Untersuchungen über die erworbene Resistenz der Meerschweinchen gegen Penicillin. **[Studies on the acquired resistance of g. pigs to penicillin.]**—*Zbl. VetMed.* **2,** 383-391. [English, French and Spanish summaries.] **983**

Toxicity of penicillin in the g. pig is due to suppression of the Gram-positive intestinal flora, but these organisms later acquire resistance and supplant the increased *Streptococcus faecalis.* At this stage the animal gains wt., and can withstand 10 times the normally lethal dose of the antibiotic.—F. R. PAULSEN.

CHABBERT, Y. (1955). Etudes *in vitro* sur la spiramycine. Activité, résistance, antibiogramme, concentrations humorales. **[Studies *in vitro* of spiromycin.]** **[A *Streptomyces ambofaciens* product—*Ed.*]** — *Ann. Inst. Pasteur.* **89,** 434-446. **984**

Spiramycin resembles penicillin and the erythromycin group, to which it is generally inferior in activity. Resistance is easily acquired *in vitro.*—F. R. PAULSEN.

SCHIELER, W. (1955). Mögliche und bis heute bekannte Schäden und Nebenwirkungen der Antibioticatherapie. **[Harmful effects of antibiotics.]**—*Tierärztl. Umsch.* **10,** 276-281. **985**

A review of the side reactions and toxic effects of antibiotic treatment, concerning almost exclusively the literature relating to human usage, together with a warning that their potential importance in the veterinary field should not be neglected.

—G. P. MARSHALL.

I. SPARKS, L. L., ROSENAU, W., MACALPIN, R. N., DAANE, T. A. & CHOH HAO LI. (1955). **Changes in animal tissue after hydrocortisone administration. Production of dystrophic calcification of cardiac muscle in mice by hydrocortisone.**—*Nature, Lond.* **176,** 503-504. **986**

II. LOSTROH, A. & CHOH HAO LI. (1955). **Changes in animal tissue after hydrocortisone administration. Deposition induced by hydrocortisone of calcium in the heart tissue of female C_3H mice.**—*Ibid.* 504. **987**

I. & II. Chronic administration of hydrocortisone acetate to tumour-bearing and

to normal C_3H mice in high dosages produces degeneration of the cardiac muscle fibres. Histological examination revealed the deposition of Ca.—D. POYNTER.

SCHREIBER, J. (1955). Die anatomischen Grundlagen der Leitungsanästhesie beim Rind. I. Die Leitungsanästhesie der Kopfnerven. II. Die Leitungsanästhesie der Rumpfnerven. [**Anatomical basis of local anaesthesia in cattle. I. Nerves of the head. II. Nerves of the trunk.**] — *Wien. tierärztl. Mschr.* **42**, 129-153; 471-491. **988**

A detailed account, with 12 illustrations, of the anatomy and technique of anaesthetizing many of the nerves of the head and trunk regions, including the optic nerve and paravertebral anaesthesia.—R.M.

SOUZA, R. (1952). **The action of anesthetics and ions on the heart of the sheep as revealed by the electrocardiogram.**—*Arch. Esc. Vet. Minas Gerais.* **5**, 44-69. [In English. Portuguese summary.] **989**

Practically no change was produced in the E.C.G. of sheep upon i/v anaesthesia with 30 mg./kg. sodium pentobarbitone or 150 mg./kg. chloral hydrate, apart from an increase in the heart rate with the former and a decrease with the latter. In sheep receiving 300 ml. 5% calcium chloride or 1,000 ml. 20% calcium gluconate i/v under pentobarbitone anaesthesia the heart rate was increased, the PR interval slightly prolonged, the QRS complex widened, the QT interval decreased and the ST segment abolished, typical changes in potential being observed only in the T wave. In unanaesthetized sheep similar changes could be produced with about one third of the above-mentioned dosage of Ca. When 2·5% potassium chloride was given continuously by the i/v route to unanaesthetized animals at the rate of 15 ml./min., the heart rate was decreased, the P wave abolished, the QRS widened and finally disorganized, and both the T wave and the ST segment shortened and depressed. Similar injection of magnesium sulphate produced an increase in the heart rate, followed by a return to normal after the anaesthetic effect had been achieved (120–130 ml. of 5% MgSO4), a progressive increase in the PR interval and sometimes a widening of the QRS; the QT and ST intervals were slightly decreased. Cardiac arrest never preceded respiratory arrest. The toxic effects of K and Mg were promptly counteracted by injection of $CaCl_2$.

—G. P. MARSHALL.

See also absts. **673** (effect of sodium propionate on staphylococci); **674** (a corynebacterial agent against staphylococcal toxin); **677** (hibitane); **678** (ultrasonics in mastitis); **703** (iso-nicotinic acid hydrazide and tuberculin test); **704** (TB.); **705-706** (disinfectants in TB.); **735** (biomycin and levomycetin); **736** (prophylaxis and treatment of calf diseases with maternal blood); **747** (brucellosis); **776** (antibiotics and wound bacteria); **787-788** (trichomoniasis); **789-795** (trichocidin); **796-797** (furazolidone); **802-805** (coccidiosis); **817** (Aujeszky's disease and aureomycin); **820** (A.C.T.H. in rabies); **866** (phosphorus compounds against cattle grubs); **871** (cyclethrin); **873** dieldrin for control of A. americanum); **879** (piperazine adipate); **881** and **891-893** (phenothiazine); **884** (emetine hydrochloride); **935** (milk fever); **936-937** (ketosis); **966-976** (poisoning by chemicals used in agriculture); **1076-1087** (books, radiation); **1080** (Merck veterinary manual); **1081** (textbook, pharmaceutical chemistry).

PHYSIOLOGY, ANATOMY AND BIOCHEMISTRY

BRODY, S. (1955). **Average critical temperatures in cattle and man.**—*Fed. Proc.* **14**, 19-20. [Author's abst. modified.] **990**

Critical temperatures in European cattle are:— 60°F. (sharp rise in evaporation and respiration rates); 75°F. (rapid decline in the rise of evaporation and respiration rates, with abrupt rise in rectal temp., followed by decline in feed consumption, milk production, body wt., thyroid activity, heat production, pulse rate, CO_2-combining capacity and rise in blood creatinine and pH); 150°F. (meeting of skin and environmental temperatures, rectal temp. attains the near-lethal 107°–108°F. level in contrast to normal 101°F.). Large (Holstein) and high-yielding cows reach critical reactions at lower environmental temperatures than small (Jersey) and low-yielding cows. Zebu cattle similar in weight to Jerseys, reached critical reactions at about 15°F. higher than European cattle. Cattle are less tolerant to heat than man because of greater resting heat production per unit area.

FRIIS, T. (1955). **Measurement of the body temperature of guinea-pigs. I. Reaction of normal animals to administration of purified tuberculin and indifferent fluids. II. Reaction of BCG vaccinated animals to administration of purified tuberculin.**—*Acta path. microbiol. scand.* **37**, 225-232 & 233-240. [In English.] **991**

I. Intravenous injection of distilled water or phosphate buffer soln. had no effect on the rectal temp. of g. pigs, measured at intervals for up to 4 hours after injection. I/v injection of P.P.D. tuberculin in doses of 0·1 mg. and above had a pyrogenic effect in normal non-sensitized animals.

II. Varying doses of P.P.D. tuberculin

were injected i/v into g. pigs vaccinated with B.C.G. The av. rise in body temp. depended on the dose of tuberculin injected. There was a close relationship between the rise in temp. 2–4 hours after injection and the number of animals which died from tuberculin shock.

—W. R. Bett.

Dowling, D. F. (1955). **The thickness of cattle skin.**—*Aust. J. agric. Res.* **6,** 776-785. [Author's summary slightly modified.] **992**

The mean total skin thickness (mm.) in the breeds sampled was: Devon 8·15, Hereford 6·7, zebu cross 6·43, Australian Illawarra Shorthorn 6·23, Friesian 6·0, zebu 5·77, Aberdeen Angus 5·75, Shorthorn 5·69, and Jersey 5·46.

The Shorthorn and the zebu differed significantly in the depth of the papillary and reticular layers, and in the relative thickness of these skin layers. The mean thickness of the papillary layer was 0·98 mm. in the zebu, 1·40 mm. in the zebu cross, and 1·70 mm. in the Shorthorn. Thus the larger, more active sweat glands of the zebu are more superficial. The corresponding reticular layer averaged 4·45 mm. in the zebu, 4·5 mm. in the zebu cross, and 4·08 mm. in the Shorthorn. The thickness of the papillary layer in relation to the total skin thickness was 18·3, 23·7, and 29·5%, in the zebu, zebu cross and Shorthorn respectively.

The zebu and the Jersey have relatively thin skins. A thick skin is not therefore essential for adaptability to a hot environment. Inherent differences in the function of the follicles and the glands of the papillary layer may be critical characteristics for heat tolerance.

Dowling, D. F. (1955). **The hair follicle and apocrine gland populations of Zebu (*Bos indicus* L.) and Shorthorns (*B. taurus* L.) cattle skin.**—*Aust. J. agric. Res.* **6,** 645-654. [Author's summary slightly modified.] **993**

Skin samples taken with a trephine of known size from Shorthorn and zebu cattle were used to determine the density of hair follicles and apocrine glands in the skin. The repeatability of the measurement of density on the same animal was found to lie between 78 and 90%.

The expansion of the skin as the animal grows, and the manner in which the plane of nutrition can modify growth and so the extent of expansion, has a predominating effect on the hair follicle and apocrine gland density. There is a significant difference between ages, but for each breed the regression coefficients of log follicle number on log heart girth within age groups are not significantly different.

The mean number of hair follicles per sq. cm. in zebus was 1,698, in zebu crosses 1,321, and in Shorthorns on a low plane of nutrition 1,064. In Shorthorns on a high plane the number was 764. All differences were statistically significant.

Goss, H. & Green, M. M. (1955). **Copper in hair.**—*Science.* **122,** 330-331. **994**

Results of trace metal analyses of hair from man and animals are at variance with those of Kikkawa *et al.* [*V.B.* **26,** 255]. There is no confirmation of the theory that darkness of hair is correlated with high copper content.

—F. R. Paulsen.

Mariappa, D. (1955). **External characters of a foetal Indian elephant.**—*Indian vet. J.* **32,** 8-17. **995**

M. described the gross external characters of the different regions and the histological features of the skin and mammary gland of a female elephant foetus, judged to be about 12 months old.—R. N. Mohan.

Davson, H. (1955). **A comparative study of the aqueous humour and cerebrospinal fluid in the rabbit.**—*J. Physiol.* **129,** 111-133. **996**

Blood-aqueous humour and blood-c.s.f. barriers are similar, but aqueous humour is renewed faster than c.s.f. Kinetic anomalies in uptake by the lens and the vitreous body are due to uptake from the aqueous humour. Penetration of barriers by inorganic ions and *p*-amino-hippurate is discussed. In the ocular and cerebrospinal systems, the primary kinetic process in the formation of fluids is sodium transport from the plasma into the posterior chamber or the ventricle.—F. R. Paulsen.

Febvre, P., Dhennin-Salomon, Louis, Dhennin-Salomon, Léone & Mauvernay, R.-Y. (1955). Étude de la variation du potassium dans les liquides amniotique et allantoïdien des foetus bovins. **[Variation in potassium content of the amniotic and allantoic fluids of the bovine foetus.]**—*Rec. Méd. vét.* **131,** 679-688. **997**

Spectrographic analysis revealed that the potassium level of the amniotic fluid fell with increasing foetal age. In allantoic fluid the potassium level was higher and the sodium level lower than in the amniotic fluid of the same foetus. The variations in the allantoic content did not appear to be related to the age

of the foetus, but the authors claimed that they found an inverse correlation between the levels of Na and K.—A. Seaman.

Kamocsay, D., Tarnóczy, T. & Szilárd, J. (1955). **Accelerated growth of rats irradiated with ultrasound.**—*Acta vet., hung.* **5,** 171-177. [In English. Russian summary.] **998**

Increased wt. in young rats submitted to ultrasonic waves is induced by enhanced functioning of ovaries and adrenal glands.

—F. R. Paulsen.

Brooks, J. & Hale, H. P. (1955). **Strength of the shell of the hen's egg.**—*Nature, Lond.* **175,** 848-849. **999**

The strength of the shell of intact eggs was measured by placing eggs between two parallel metal plates, to which weights were applied. The minimum average weight which broke eggs of 0·33 mm. average shell thickness was 3·66 kg. In strong shells the av. magnesium content was 0·44%; that of weak shells was 0·386%. There was little difference in the calcium, sodium and phosphorus content between strong and weak shells. The authors discussed the relationship of Mg content to shell strength.—R.M.

Urban, W. D. (1955). **Unabsorbed egg yolk in chicks.**—*J. Amer. vet. med. Ass.* **127,** 233-235. **1000**

Unabsorbed yolk in chicks is not quickly reabsorbed by withholding food or water, nor is it correlated with body wt. up to 10 weeks of age. It has persisted for over 2 years in male birds without any harm.

—F. R. Paulsen.

Pennington, R. J. & Sutherland, T. M. (1955). **The production of succinate from propionate by carbon dioxide fixation in sheep rumen epithelial tissue.**—*Biochem. J.* **60,** No. 4, p. xxxvii of Proceedings. **1001**

Incubation of propionate in the presence of malonate, with sections of rumen epithelial tissue in an atmosphere containing 20% labelled CO_2, resulted in the formation of succinate in which the CO_2-carbon and the carboxyl-carbon were incorporated to a similar extent. These experiments indicated that succinate is formed from propionate by a direct pathway involving CO_2 fixation.

—C. C. Bannatyne.

Wolbach, R. A. (1955). **Renal regulation of acid-base balance in the chicken.**—*Amer. J. Physiol.* **181,** 149-156. **1002**

Infusion of hydrochloric acid in fowls causes a fall in the pH of the urine, with increased excretion of uric acid and monobasic phosphate, enhanced by infusion of neutral urate or phosphate. Ammonia excretion is doubled by infusion of alanine, leucine and glycine.—F. R. Paulsen.

Andersson, B. (1955). **Observations on the water and electrolyte metabolism in the goat.**—*Acta physiol. scand.* **33,** 50-65. [In English.] **1003**

The author studied by way of a rumen fistula the urinary excretion of sodium, potassium and chlorine following the administration of water to goats; also the inhibition of water diuresis by posterior pituitary extract; changes in the rate of urine excretion and extracellular electrolyte pattern during emotional stress; and the effect of adrenaline and ephedrine on diuresis and the urinary excretion of Na, K and Cl.—R.M.

Kolb, E. (1955). Untersuchungen über die normale Schwankungsbreite der Serumfermente (Diastase, Lipase, saure und alkalische Phosphatase) beim Schwein. **[Studies on the normal values for certain serum-enzymes (diastase, lipase, acid and alkaline phosphatase) in the pig.]**—*Zbl. VetMed.* **2,** 483-488. [English, French and Spanish summaries.] **1004**

In the serum of healthy adult pigs, diastase activity is higher than in human serum; lipase activity is lower, acid phosphatase slightly higher, and alkaline phosphatase about the same as in man.

—F. R. Paulsen.

Weaver, J. A. (1955). **Changes induced in the thymus and lymph nodes of the rat by the administration of cortisone and sex hormones and by other procedures.**—*J. Path. Bact.* **69,** 133-139. **1005**

Thyroidectomy, administration of adrenocorticotrophic hormone (A.C.T.H.), cortisone, oestrogen, testosterone, and thyroid extract, all result in loss in thymus wt. in rats, but lymph node wt. decreases only after A.C.T.H. or cortisone. Non-specific involution of all parts of the thymus occurs. Only cortisone truly affects lymphatic tissue.

—F. R. Paulsen.

Halama, A. K. & Müller-Settele, A. (1955). Beitrag zur Methodik der Hämoglobinbestimmung. **[Methods for the determination of haemoglobin in horse blood.]**—*Wien.*

tierärztl. Mschr. **42,** 380-384. [English, French and Italian summaries.] **1006**

There was no statistically significant difference in the values obtained for haemoglobin in horse blood when determined by the method of Sahli and by a ferric thiocyanate method.—F. R. Paulsen.

Boutler, M. (1955). Die Blutkörperchensenkung beim Rind. **[Erythrocyte sedimentation in cattle blood.]**—*Schweiz. Arch. Tierheilk.* **97,** 465-492. [English, French and Italian summaries.] **1007**

Cattle blood sedimenting in tubes 320 mm. long and 2 mm. internal diam., shows characteristic values even after 2 hours, when tubes are at 30° slope to horizontal. Sedimentation in the tubes was complete after 5–7 days, providing haemolysis did not occur. From measurements of the proportion of sediment to plasma in these tubes, it was possible to calculate the r.b.c. volume. The sedimentation rate varies inversely with the r.b.c. volume, but as neither factor is much altered by disease, the method is of little clin. value in cattle.—F. R. Paulsen.

Ebaugh, F. G., Jr., Levine, P. & Emerson, C. P. (1955). **The amount of trapped plasma in the red cell of the hematocrit tube.**—*J. Lab. clin. Med.* **46,** 409-415. **1008**

R.b.c. were resuspended to give blood samples in which the packed cell volume (p.c.v.) ranged between 18 and 75%. The plasma content of aliquots was determined by haematocrit and by estimating the dilution of Cr^{51}- tagged haemoglobin dispersed extracellularly. There was a direct correlation between trapped plasma and p.c.v. when the latter values exceeded 33%.—John Seamer.

Eckles, N. E., Taylor, C. B., Campbell, D. J. & Gould, R. G. (1955). **The origin of plasma cholesterol and the rates of equilibration of liver, plasma and erythrocyte cholesterol.**—*J. Lab. clin. Med.* **46,** 359-371. **1009**

Cholesterol metabolism was studied in normal hepatectomized and "sham-operated" dogs, using C^{14} acetate. The findings indicated that the turnover of cholesterol is extremely rapid.—John Seamer.

Bartík, M. & Havassy, I. (1955). Biochémia a fyziológia bielkovín krvných sér domácich zvierat. II. Elektroforetickopolarografické sledovanie zmien bielkovinného spektra novorodených kozliat. III. Elektroforetickopolarografické sledovanie zmien bielkovinového spektra teliec. **[Biochemistry and physiology of serum proteins in domestic animals. II. New-born kids. III. Calves.]**—*Vet. Čas.* **4,** 22-28 & 131-138. [In Slovak. Russian and German summaries.] **1010**

II. The authors examined the serum protein spectrum in goats, 1–24 days old, by electrophoresis and polarography and compared it with colorimetric findings. The γ-globulin content varied and there was a polarographically-active substance in the globulin fraction which the colorimeter failed to detect.

III. In calves there was a steady fall in the originally comparatively high α-globulin fraction, lasting for about 4 weeks. At the same time there was an increase in the β-globulin fraction, which began to decrease again after 24 days of age. The high content at birth of polarographically-active substances in the α-globulin fraction was probably caused by the high fetuin content.—E.G.

Greatorex, J. C. (1955). **Observations on the urea content of the blood of calves and adult cattle.**—*Brit. vet. J.* **111,** 300-308. [Author's summary modified.] **1011**

G. studied the urea content of the blood of calves up to 52 weeks of age and of adult cattle of 4 dairy breeds. With the adult cattle, consideration was given to the variations which may exist between the different breeds, pregnant and non-pregnant animals, and the influence of milk yield.

Šabjan, I. (1955). Sadržaj kalija u krvnom serumu zdravih konja, goveda, ovaca i pasa. **[Potassium content of blood serum in healthy horses, cattle, sheep and dogs.]**—*Veterinaria, Sarajevo.* **4,** 69-73. [In Croat. English summary.] **1012**

The serum potassium level in adult, healthy horses was 17·53–20·42 mg.%; in cattle 17·36–19·91 mg.%; in sheep 18·89–20·59 mg.%; and in dogs 17·02–19·57 mg.%. —E.G.

Price, K. C., Weiss, J. M., Hata, D. & Smith, J. R. (1955). **Experimental needle biopsy of the myocardium of dogs with particular reference to histological study by electron microscopy.**—*J. exp. Med.* **101,** 687-694. **1013**

Several needle biopsy punctures may safely be made in the myocardium of the dog, and yield excellent material for light and electron microscopy, as well as for biochemical and histochemical work. Similar remarks

apply to human subjects. Preparations showed no sign of distortion, but contained evidence of r.b.c. in the extravascular spaces of the heart (possibly an artefact).—F. R. PAULSEN.

I. KIBLER, H. H. & BRODY, S. (1954). **Environmental physiology and shelter engineering with special reference to domestic animals. XXXI. Influence of radiation intensity on evaporative cooling heat production, and cardiorespiratory activities in Jersey, Holstein, and Brahman cows.**—*Res. Bull. Mo. agric. Exp. Sta.* No. 574. pp. 31. **1014**

II. BLINCOE, C. & BRODY, S. (1955). **Environmental physiology and shelter engineering with special reference to domestic animals. XXXII. The influence of ambient temperature, air velocity, radiation intensity, and starvation on thyroid activity and iodide metabolism in cattle. XXXIV. The influence of diurnally variable temperatures on the thyroid activity and iodide metabolism of Jersey and Holstein cows.**—*Ibid.* No. 576. pp. 36. No. 579. pp. 12. **1015**

III. BRODY, S., RAGSDALE, A. C., YECK, R. G. & WORSTELL, D. (1955). **Environmental physiology and shelter enginering with special reference to domestic animals. XXXIII. Milk production, feed and water consumption, and body weight of Jersey and Holstein cows in relation to several diurnal temperature rhythms.**—*Ibid.* No. 578. pp. 26. [For other parts in this series, see *V.B.* **25**, 3055-3061.] **1016**

I. A total of 12 cows of the Jersey, Holstein and zebu breeds were exposed for periods lasting one week to radiation from electric lamps at an intensity of from 0 to 500 Cal./sq.metre/hour at environmental temp. of 9°, 21° and 26°C. The authors determined the heat tolerance of the cows under these conditions, using as criteria rectal temp., respiration, pulse and pulmonary ventilation rate, heat production, and evaporative loss of water from the skin and lungs.

II. Increase in environmental temp. above 35°C. decreased the thyroid activity in Jersey, Holstein, Brown Swiss and zebu cows. Decrease in the environmental temp. from 16° to –8°C. increased the thyroid activity of the Jersey and zebu cows, but not the other breeds. Air velocity had no effect on thyroid activity; starvation or excessive exposure to light reduced the activity in some cases.

The rate of release of thyroid hormone from the gland into the blood plasma was the best single index of thyroid activity for the purposes of this study.

III. Six lactating cows were exposed to different diurnal variations in environmental temp., similar to those encountered in the U.S.A. The authors concluded that stress as a result of exposure to a high range of diurnal temp. was the effect of not only the high average temp. but also of the large number of hours of exposure to heating temp. (above 26°C.) and cooling temp. (below 21°C.).—R.M.

BRUNAUD, M. & NAVARRO, J. (1955). Action de l'ésérine sur la motricité gastrique du mouton. **[Action of physostigmine on gastric motility in sheep.]**—*C. R. Soc. Biol., Paris.* **149,** 196-198. **1017**

Physostigmine, administered in doses of 0·01–0·05 mg./kg. [presumably subcutaneously], increased the strength of contractions of the rumen, reticulum and abomasum, improved their regularity, and sometimes increased their frequency. Higher doses (0·1–0·2 mg./kg.) produced incoordinated contractions, but without signs of blockage of the nervous impulse.—R.M.

LEGAIT, H. (1955). Variations indépendantes d'activité des noyaux paraventriculaires et supraoptiques au cours du cycle annuel et de la couvaison chez la poule Rhode-Island. **[Activity of the paraventricular and supra-optic nuclei at different seasons and during broodiness in the hen.]** — *C. R. Soc. Biol., Paris.* **149,** 175-177. **1018**

During periods of sexual inactivity, there was little difference in size between the nuclei of cells of the paraventricular and supra-optic nuclei of the hypothalamus in hens. During egg-laying, activity of cells of the paraventricular nucleus was greater than that of the other nucleus. During broodiness, activity in both nuclei increased, but at different times.—R.M.

IWANOFF, X. & MLADENOFF, Z. (1955). Ist die Osteomyelosklerose der Hühner eine Krankheit? **[Is osteomyelosclerosis of fowls a disease?]**—*Mh. VetMed.* **10,** 175-177. **1019**

As osteomyelosclerosis, a general proliferation of spongy substance within the medullary cavity of the bones, is never found in juvenile or male birds but only in females during periods of active egg-laying and as it is accompanied by no signs of disease the authors consider it to be a physiological pro-

cess. They suggest that it represents a means of calcium storage in laying females. Compensatory extramedullary haemopoiesis takes place in the liver and spleen in response to the decrease of the medullary cavities.

—W. G. SILLER.

JUBB, K. V. & MCENTEE, K. (1955). **Observations on the bovine pituitary gland. II. Architecture and cytology with special reference to basophil cell function.**—*Cornell Vet.* **45,** 593-641. **1020**

Studies on 350 glands stained by the periodic acid-leucofuchsin technique revealed two types of basophiles. The 'beta' cells were concentrated in the medulla and became degranulated and vacuolated in thyroxine deficiency. The 'delta' cells were present in the whole adenohypophysis but were more numerous in the medulla. In those in the anterior lobe degranulation occurred in the first hours of oestrus, those in the pars tuberalis had no cyclic activity but were degranulated in castrates. The acidophiles were granulated from the 3rd to the 10th day after oestrus.

—A. SEAMAN.

See also absts. **945** (blood picture in cows); **1049** (temprature and milk production in cows); **1050** (heat tolerance in marsupials); **1054** (sexual behaviour in g. pigs); **1073** (book, zoology).

PUBLIC HEALTH, VETERINARY SERVICES AND VETERINARY EDUCATION

BENTLEY, E. W., LARTHE, K. & TAYLOR, A. (1955). **The effect of particle size on the toxicity of α-naphthyl thiourea (ANTU) to albino rats.**—*J. Hyg., Camb.* **53,** 328-334. [Authors' summary modified.] **1021**

Particles of α-naphthyl thiourea of 5 μ diameter were significantly less toxic to rats than particles of 50–55μ. In each of three bioassays they were less toxic than particles of 100–110μ. It was concluded that the specification of the drug for use in poison baits against *R. norvegicus* should not require it to be in the form of fine particles.

See also absts. **687** (anthrax spores in imported bones); **688** & **693** (TB. in man and cattle); **730** (life span of E. rhusiopathiae in carcasses); **815** (vesicular stomatitis in man); **818** (wild-life rabies in Texas); **821** (cow pox in man); **825** (E.I.A. in man); **852-855** (psittacosis); **1083** (guide for bacteriological milk inspection); **1084** (Ostertag's text-book of meat inspection).

LIVESTOCK HYGIENE

GERRIETS, E., WERNER, C. & STAHL, H. (1955). Vergleichende bioklimatische Untersuchungen am Huhn unter verschiedenen Haltungsbedingungen. [**Comparative bio-climatic investigations in the fowl in different types of buildings.**]—*Arch. Geflügelk.* **19,** 276-300. [English summary.] **1022**

An interim report on observations on the effect of housing on the health and laying activity of fowls. The huts in which the 4 groups of 11 birds were kept varied in respect of insulation and shelter from weather. It was found that even during the severe winter of 1953–54 there was no respiratory disease, nor reduced egg production, in the birds kept in open-fronted huts. Damage by frost could be prevented by collecting the eggs every 2 hours.—W. G. SILLER.

GRIMBERGEN, A. H. M. (1955). Microorganismen, antibiotica en vitamine B_{12} in oud strooisel. [**Micro-organisms, antibiotics and vitamin B_{12} in old built-up litter.**]—*Tijdschr. Diergeneesk.* **80,** 605-615. [English, French and German summaries.] **1023**

An organism, probably *Thermoactinomyces monospora,* was isolated from old built-up litter. This organism produced an antibiotic which was, however, very unstable in the presence of the litter material. In fowl faeces the largest portion of the microbiologically measured activity attributed to vitamin B_{12} was caused by other factors, such as factor A. In built-up litter vitamin B_{12} was quantitatively more important than these other factors.—C. A. VAN DORSSEN.

ANON, (1955). **An anti-smog bottle.**—*Brit. med. J.* Nov. 5th, 1135. **1024**

A brief account of the use of an adjustable wick in a bottle of ammonia as a means of neutralizing the sulphuric acid content of the air.—M.G.G.

See also abst. **773** (effect of management and feeding on ovine foot rot).

REPRODUCTION AND REPRODUCTIVE DISORDERS

BONFERT, M. (1955). Spermabefunde bei Bullen nach längerer Deckruhe. **[Quality of bull semen after a period of sexual inactivity.]**—*Fortpflanzung.* **5,** 41-43. [English summary.] **1025**

An analysis is presented in tabular form of the quality of semen of 14 Holstein-Friesian bulls after 6 weeks of sexual inactivity. Motility of spermatozoa was reduced after retention for 4 days. The percentage of abnormal spermatozoa was increased in the first and second ejaculates. The semen returned to normal after one month of regular sexual activity.—W. R. BETT.

JAHNEL, J. (1954). Agglutination von Spermatozoen im Eidotter-Zitrat-Verdünner. **[Agglutination of spermatozoa in yolk citrate semen diluent.]**—*Wien. tierärztl. Mschr.* **41,** 486-496. [English, French and Italian summaries.] **1026**

Clumping of diluted spermatozoa may be due to lack of carotenoid in eggs, and is marked in thin semen and increased by alkalinity. It is prevented if the diluent is kept at 60°C. for half an hour. A marked degree of agglutination decreases fertility.

—F. R. PAULSEN.

FLIPSE, R. J. & POTTER, F. E. (1955). **Presence of volatile fatty acids in bovine semen.**—*Proc. Soc. exp. Biol., N.Y.* **89,** 432-433. [Authors' summary modified.] **1027**

Concentrations of 0·79–2·50 milli-equivalents of volatile fatty acids per 100 ml. were found in pooled ejaculates of bull semen. Acetic and formic acids were identified as the major volatile fatty acid constituents.

PRABHU, S. S. & SHARMA, U. D. (1955). **Sex-drive and semen production in water buffalo.**—*Indian J. vet. Sci.* **25,** 89-97. **1028**

In ten buffalo-bulls of undefined breed subjected to five exhaustion tests at intervals of 40–48 hours, using an anoestrous buffalo-cow as the "teaser" and the artificial vagina for service, the authors found that the average "reaction time" increased with successive services.—R. N. MOHAN.

HUNTER, G. L., ADAMS, C. E. & ROWSON, L. E. (1955). **Inter-breed ovum transfer in sheep.**—*J. agric. Sci.* **46,** 143-149. [Authors' summary modified.] **1029**

Fertilized ova were transferred from Border Leicester to Welsh Mountain ewes, and *vice versa.* The oestrous cycles of the ewes were synchronized by progesterone treatment, and donor ewes were super-ovulated with pregnant mare's serum. Sixty-eight to 90 hours after the onset of oestrus in the donors, 37 ova, representing 58% of the ovulations, were recovered *in vivo* from 13 ewes. Nineteen ova were transferred to 18 recipient ewes and a total of 8 pure-bred lambs were born to ewes of the opposite breed. Transfers resulted in pregnancy when oestrus in the recipients commenced from 16 hours before to 20 hours after that in the donors; 2 of the ova which developed to term were 4-cell, 5 were 8-cell and one was a 16-cell ovum at the time of transfer. Four out of 7 and 4 out of 11 transfers, using blood serum and Ringer's solution respectively, resulted in the birth of lambs. Prior to transfer to the recipients 7 of the ova which developed to term were exposed for 30–45 min. at room temp., whilst one developed after exposure for 70 min.

LARSON, G. L. & BAYLEY, N. D. (1955). **The fertility of inseminations made in cows showing postestrous hemorrhage.**—*J. Dairy Sci.* **38,** 549. **1030**

Of 211 inseminations 116 were checked by pregnancy diagnosis, and the remainder by 60–90 day non-return. The conception rates obtained were respectively 28·4 and 20·7, which agrees with the results obtained in Denmark by Autrup & Rasbech [*V.B.* **22,** 1177] in a similar investigation. Weber (1948) is quoted as having established that bleeding appeared 20–30 hours after ovulation [confirmed by abstractor's experience.]

—F. L. M. DAWSON.

ROLLINSON, D. H. L. (1955). **Oestrus in Zebu cattle in Uganda.**—*Nature, Lond.* **176,** 352-353. **1031**

Duration of oestrus is short in the zebu cattle at Entebbe, but the pro-oestrous period is much longer than the 44–63 min. reported in Kenya. For a considerable period before and after oestrus the behaviour of the female is similar to that during the first and second stages of oestrus. Two observations are given in detail. The proportion of cows coming into oestrus during darkness (40%) is similar to that reported in Kenya.—W. R. BETT.

MERCIER-PAROT, L. & TUCHMANN-DUPLESSIS, H. (1955). Influence de la réserpine sur le cycle oestral de la ratte. **[Influence of**

reserpine on the oestrous cycle of the rat.]—*C. R. Acad. Sci., Paris.* **240,** 1935-1936. **1032**

Oestrus in rats was suppressed by the daily s/c administration of 50μg. reserpine, an alkaloid from *Rauwolfia serpentina.*—R.M.

Ennio, B. & Ugo, S. (1955). La gravidanza della bovina negli aspetti e riflessi colpocitologici. [**Pregnancy in the cow in relation to vaginal cytology.**]—*Riv. Med. vet., Parma.* **7,** 49-62. [English, French and German summaries.] **1033**

An examination of vaginal smears taken throughout pregnancy revealed that r.b.c. were rarely present, whereas nucleated cells were always present in small numbers. Cornified superficial epithelial cells tended to increase and leucocytes appeared during the fourth month. Cytolysis occurred during the fifth month and became marked during the sixth to eighth months, whilst at the ninth month, the smears appeared to be similar to those of early pregnancy. The findings confirm the absence of circulatory oestrogens until after the 210th day of pregnancy.

—J. A. Nicholson.

Gómez Cárdenas, G. (1955). La hormona gonadotropa en fisiologia comparada. Su aplicacion al diagnostico de la gestacion. [**Gonadotrophic hormone in comparative physiology. Its application to the diagnosis of pregnancy.**]—*Cienc. vet.* (*Rev.*) **16,** 104-116. **1034**

A discussion of the literature on the presence or absence of gonadotrophic hormone in the blood and urine during early pregnancy in domestic animals, and of tests to detect it.

—F. R. Paulsen.

Lombardo, N. & Cartella, I. (1955). L'azione degli stilbenici sugli organi genitali maschili e femminili e sulle ghiandole endocrine ad essi correlate. [**Action of oestrogens on the genital and endocrine system of g. pigs.**]—*Zootec. e Vet.* **10,** 115-129. [English summary.] **1035**

Examination of reproductive and other organs from g. pigs which had received stilboestrol implants for 30 days revealed that the effect of stilboestrol on the ovaries depended on the amount absorbed. Minimal absorption (0·2 mg.) produced follicle development, but maximal absorption (12·5 mg.) produced follicular involution with cystic atresia. The implants produced hyperplasia of the endometrial glands and atrophy of the germinal epithelium of the testes. A reduction in thyroid activity was suggested by the accumulation of colloid in thyroid glands of treated animals. With minimal absorption an increase of eosinophiles was noted in the pituitary gland, but with increased absorption there was a reduction of eosinophiles and an increase of neutrophiles. In the adrenal cortex, a reduction of chromolipids in the zona fasciolata was noted.—J. A. Nicholson.

Jondet, R. (1955). Utilisation de l' oestrogène de synthèse "diéthylstilboestrol" dans le traitement de l'anoestrus des femelles bovines. Valeur d'une dose unique. [**Diethylstilboestrol in the treatment of anoestrus in cows. Value of a single dose.**]—*Rec. Méd. vét.* **131,** 670-678. **1036**

A single dose of 20 mg. of diethylstilboestrol dipropionate produced oestrus in 55% of cows with primary anoestrus, and 66% of those which responded to the action of the oestrogen became pregnant following artificial insemination. Of cows with prolonged anoestrus, 80% came into oestrus and 40% of these conceived following A.I.—W. R. Bett.

Hancock, J. L. (1955). **The disintegration of bull spermatozoa.**—*Vet. Rec.* **67,** 825-826. [Author's summary modified.] **1037**

In sterile Guernsey bulls disintegration of the spermatozoa into isolated heads and tails is shown to occur in the caput epididymis. Disintegration is associated with the migration of the cytoplasmic droplet from the proximal to the distal end of the mid-piece of the spermatozoon, and occurs while the spermatozoa are passing through the caput epididymis. This is also true of bulls with morphologically normal spermatozoa.

Benesch, F. (1955). Over de aetiologie en therapie der nymphomanie bij rund en paard. [**Aetiology and treament of nymphomania in the cow and the mare.**—*Vlaam. diergeneesk. Tijdschr.* **24,** 120-130. [English, French and German summaries.] **1038**

Nymphomania in cattle is characterized by enlargement of the uterus and by cystic ovaries and can be treated by spaying or by enucleation of the cysts and hormone injections. In the mare 60% of the ovaries are not enlarged; spaying is the only effective treatment.—C. A. van Dorssen.

Panasenko, F. T. (1955). [**Treatment of diseases of the uterus in cows.**]—*Veterinariya, Moscow.* **32,** No. 6, pp. 58-62. [In Russian]. **1039**

The mild disinfectants, commonly used for the treatment of endometritis after calving, were tested *in vitro* and *in vivo*. When they were mixed, *in vitro*, with uterine discharge their effect was negligible. Lavage of the uterus with disinfectant, and subsequent instillation for an hour, did not lower the number of organisms in the discharge and retarded the regeneration of the endometrium.

—A. MAYR-HARTING.

DINEEN, J. (1955). **A note on the control of cannibalism in sows.**—*Irish vet. J.* **9,** 104. **1040**

Cannibalism in sows can be cured by the administration of "mysoline" (5 - ethyl - 5 - phenylhexahydropyrimidine-4 : 6-dione) tablets crushed in milk. Four 250-mg. tablets are given twice daily, the dosage being gradually reduced after about 48 hours.—M.G.G.

SCHULZE, W. (1955). Over de physiologie en pathologie der geboorte bij de hond met enkele vergelijkende beschouwingen. **[The physiology and pathology of parturition in the bitch.]**—*Vlaam. diergeneesk. Tijdschr.* **24,** 81-95. [English and French summaries.] **1041**

S. discussed the literature and his own observations. He reported the secretion of a nutritive substance by the oviduct of the bitch. For the termination of unwanted pregnancy he recommended injection of oestrogens [details not given] on the 6th, 8th and 10th days after service. Pregnancy of approx. 21 days' duration was interrupted by the injection of 1% silver nitrate soln. into the ampullae of the fallopian tubes, by means of a catheter introduced through a laparotomy incision. A case of abortion caused by *Brucella* was described. S. believed that foetuses are born alternately from each horn.—C. A. VAN DORSSEN.

FISCHER, H. (1955). Die Letalfaktoren des Schafes. **[Lethal factors in sheep.]** — *Fortpflanzung.* **5,** 31-32. [English summary.] **1042**

A summary is presented of 12 lethal factors in sheep.—W. R. BETT.

KERNKAMP, H. C. H. & KANNING, H. H. (1955). **Primary megacolon (Hirschsprung's disease) in swine.**—*N. Amer. Vet.* **36,** 642-643. **1043**

Four cases of primary megacolon are reported in pigs that were members of a single drove. All occurred within a period of 3–4 weeks. The principal P.M. finding was a marked distension of the large intestine, which contained a semi-soft mass of ingesta with many small bubbles on the surface. In one case there was a rent in the colon. It is probable that these pigs were litter mates.

—W. R. BETT.

JØRGENSEN, S. K. & WITH, T. K. (1955). **Congenital porphyria in swine and cattle in Denmark.**—*Nature, Lond.* **176,** 156-158. **1044**

Congenital porphyria has been found in pigs and cattle in North Jutland. Pigs with dark teeth as a rule develop porphyria. The severity of the condition can be assessed by quantitative analysis of teeth or bones for porphyrin. The technique is described. In compact bone the concentration is often 5–10 times as high as in the spongy substance. Porphyrin in the teeth is mainly found in the dentine. The health of pigs with porphyria is affected only in the most extensive cases.

In cattle congenital porphyria is inherited as a recessive character, in pigs as a dominant character.—W. R. BETT.

GOTINK, W. M., DE GROOT, T. & STEGENGA, T. (1955). Erfelijke gebreken in de rundveefokkerij. **[Hereditary defects of cattle in the Netherlands.]**—*Tijdschr. Diergeneesk.* **80,** Suppl. pp. 1-45. [English, French and German summaries.] **1045**

This is a description of 9 lethal and 35 other hereditary defects in cattle, together with references and 26 photographs. Special attention was given to defects in the Netherlands.—C. A. VAN DORSSEN.

HERRICK, E. H. & ELDRIDGE, F. E. (1955). **Hereditary edema in Ayrshire cattle.**—*J. Dairy Sci.* **38,** 440-441. **1046**

A bull calf with extensive oedema from birth, but apparently fertile, was killed at 16 months. A large portion of the pituitary gland, particularly of the posterior lobe, was found to be replaced by a cyst containing fluid of undetermined origin and content. Blood counts were normal.—M.G.G.

I. ROSENBERGER, G. (1955). Über eine erbbedingte Trübung der Hornhaut beim Rind (Leucoma corneae binocularis hereditaria). **[Inherited opacity of the cornea in cattle.]**—*Dtsch. tierärztl. Wschr.* **62,** 81-82. **1047**

II. COHRS, P. (1955). Zur Histopathologie der erbbedingten Trübung der Hornhaut des Rindes. **[Histology of inherited opacity of the cornea in cattle.]**—*Ibid.* 82-83. **1048**

I. & II. Opacity of the cornea was found in 24 calves and young cattle. The condition is hereditary, recessive and not sex-linked. The rest of the eye and the brain show no histological changes. The propria of the cornea is oedematous, but the mechanism of the development of the oedema is not clear.
—W. R. Bett.

See also absts. **709** (uterine and congenital Johne's disease); **725** (abortion in sows caused by E. rhusiopathiae); **758** (leptospiral abortion in pigs); **769-770** (vibrionic abortion); **797** (effect of furazolidone on gonads of cockerels); **810** (toxoplasms in milk, placenta and new-born piglets of sows without symptoms); **826** (equine virus abortion); **832** (viral infertility in cattle); **893** (effect of phenothiazine on conception in ewes); **933** (reversal of hypoglycaemia of fasted pregnant ewes); **995** (external characters of an elephant foetus).

ZOOTECHNY

Rako, A. & Dumanovsky, F. (1955). Der Einfluss von niedrigen Temperaturen auf die Milchleistung bei Kühen. **[Effect of low temperature on milk production in the cow.]** —*Schweiz. Arch. Tierheilk.* **97,** 334-342. [English, French and Italian summaries.] **1049**

Ten cows kept out-of-doors for 3½ hours each day for 12 days at an average temp. of –0·4°C. yielded 1·1% less milk than 10 cows kept in the stable. Before the test they had yielded 1·4% more than the control cows. Over another 8 days at an av. outside temperature of –9·7°C. the difference in yield was 5·8% in favour of the control cows. There was however an increase in milk fat of 0·4% on the part of the test cows.

Haemoglobin content of the blood increased by 4% in the test cows, and by 1% in the controls. In the course of their 3½ hours' sojourn in the open, the av. body temp. of the test cows dropped by 0·2°C., the respiration rate decreased, but pulse-rate increased by 1·4 beats per min.—M.G.G.

Robinson, K. W. (1954). **Heat tolerances of Australian monotremes and marsupials**—*Aust. J. biol. Sci.* **7,** 348-360. **1050**

Heat tolerance of monotremes (echidna, platypus) and marsupials (bandicoot, opossum, cuscus, koala, wallaby and wallaroo) was compared by exposing them for 7-hour periods to various combinations of dry bulb temperatures ranging from 86° to 108·5°F. with absolute humidity from 15 to 40 mm. v.p. Results revealed an evolutionary trend in homoeothermism, the monotremes relying primarily on metabolic regulations to maintain body temp., and the marsupials on both respiratory and non-respiratory mechanisms.
—M. D. Murray.

Hughes, R. E. (1955). **Ecology of Snowdonia. Ecology of livestock productivity.**—*Nature, Lond.* **176,** 595-596. **1051**

On the whole, the livestock yield of this region is determined by climate, particularly rainfall. In the drier Conway Valley, however, soil and vegetation are of importance.
—M.G.G.

Pobisch, R. (1955). Beitrag zur Verhinderung des "Überfliegens" beim Haushuhn und anderen in Gefangenschaft gehaltenen Vögeln. **[Prevention of flight in domestic fowls and captive birds.]**—*Wien. tierärztl. Mschr.* **42,** 520-526. [English, French and Italian summaries. English summary modified.] **1052**

Satisfactory results are obtained only by operation. Luxation of the carpal joint is not advisable; section of the radial nerve or of the wing extensors is not always efficient and, like the exarticulation of the carpal joint, is not suitable for mass treatment. Different sites above or below the carpus can be used for the partial amputation of the wing. A crossed ligature is used to obtain haemostasis. After operation, the wound should be cauterized.
—M.G.G.

Vendargon, X. A. (1955). **Some aspects of buffalo husbandry.**—*J. Malay. vet. med. Ass.* **1,** 13-19. **1053**

The management of the Malayan buffalo is described with particular reference to its diseases. Feeding and mating habits are discussed and reference is made to the seasonal incidence of calving.—W. S. Marshall.

Riss, W., Valenstein, E. S., Sinks, J. & Young, W. C. (1955). **Development of sexual behavior in male guinea pigs from genetically different stocks under controlled conditions of androgen treatment and caging.** —*Endocrinology.* **57,** 139-146. **1054**

Responsiveness to injected androgen varied with the genetic background in the 98 castrated g. pigs used, and increasing the dosage did not compensate in the less responsive (inbred) group. Sexual behaviour was observed in animals castrated at birth and given no hormone.—F. L. M. Dawson.

I. Dry, F. W. (1955). **The dominant N gene in New Zealand Romney sheep.** — *Aust. J. agric. Res.* **6,** 725-769. **1055**

II. Schinckel, P. G. (1955). **Inheritance of birthcoats in a strain of Merino sheep.**—*Ibid.* 595-607. **1056**

III. Dry, F. W. (1955). **Multifactorial inheritance of halo-hair abundance in New Zealand Romney sheep.**—*Ibid.* 608-623. **1057**

I.–III. These papers represent three aspects of the same problem — the inheritance of differences in the coarseness of lambs' birthcoats. Dry, working with N.Z. Romney sheep, showed that the heritability of birth-coat grade is high in normal stocks, and that the situation is complicated by the occurrence of two separate major genes (N and M genes) which causes lambs to have extremely coarse birthcoats. These major genes have pleiotropic effects on the formation of horns.

Schinckel, working with South Australian Merinos, found the heritability of birth-coat coarseness to be high (70 – 78%), and concluded that although major genes may be segregating, the variability is largely additive genetic. Sex differences occur, ewe lambs being 0·35 grade coarser than males. A significant deficiency of female progeny in the progeny of fine birth-coated ewes results from the prenatal death of a proportion of female embryos carried by fine ewes.—A. S. Fraser.

Romijn, C. & Lokhorst, W. (1955). De mogelijkheid van contrôle op de naleving van de voorschriften betreffende de ontsmetting van broedeieren. **[Method for confirming that hatching eggs have been fumigated with formaldehyde.]**—*Tijdschr. Diergeneesk.* **80,** 1135-1143. [English, French and German summaries.] **1058**

The eggs are allowed to stand in 50 ml. distilled water at 80°C. for 30 min. After the fluid has cooled, 5 ml. Schiff reagent is added, which gives a red colour in the presence of formaldehyde. Another quick method that can be performed at the hatchery is the immersion of eggs in 1% hydrochloric acid. In fumigated eggs large gas bubbles are formed on the surface; in non-fumigated eggs only small bubbles cover the surface. Comparison with an untreated control egg of the same colour as the eggs under examination is necessary.—C. A. van Dorssen.

TECHNIQUE AND APPARATUS

Anon. (1954). **A discussion on the maintenance of cultures by freeze drying.** pp. 48. London: British Commonwealth of Nations Scientific Liaison Offices. H.M. Stat. Off. 5s. **1059**

A meeting of the Permanent Committee of the British Commonwealth Collections of Micro-organisms was held in London in September 1953. The following papers were circulated before the meeting :— 'Maintenance of cultures in U.K.'; 'Outline of drying method used in the National Collection of Type Cultures (1950–53)' by S. T. Cowan; 'Notes on the freeze-drying of *Brucella abortus* S. 19 vaccine' by J. R. Hudson, E.C. Hulse & J. M. Collins; 'Concentration effects during freeze-drying of suspensions containing phenol' by L. H. Collier; 'The determination of moisture in cultures' by L. G. Beckett. Twenty-four speakers took part in the discussion. The topics discussed were 'The designer's problem', 'Material to be dried; effect of culture age and growth medium', 'Effect of the drying process on viability', 'Effect of the suspending fluid on viability', 'Effect of drying on the organism', 'Survival of organisms in the dried state', 'Conditions of storage', 'Moisture content and its measurement', 'Effect of moisture content on viability'. —M.G.G.

Macintosh, R. (1955). **A plea for simplicity.** —*Brit. med. J.* Oct. 29th, 1054-1057. **1060**

M. pointed out the disadvantages of elaborate anaesthetic apparatus that requires trained assistants for its operation. He recommended the more frequent use of inexpensive portable equipment fitted with a small hand bellows, and of muscle relaxants injected i/v through the Mitchell needle.—M.G.G.

Anon. (1954). Histochemische Methoden. Lieferung I-IV. **[Histochemical methods. Parts I-IV.]** pp. 24 each part. Munich: R. Oldenbourg. DM 6, each part. **1061**

"Histochemische Methoden" is a bi-monthly abstracting journal, first published in April 1954 and edited by W. Lipp of the Histological Institute, Graz University, Austria. Each abstract occupies two sides of a page and each provides full details of the histochemical technique employed, together with references quoted in the original publication. There are

also review articles describing basic histochemical techniques. Abstracts may be detached from each issue and arranged in order of subjects in a loose-leaf binder. A system of classification is provided for this purpose.—R.M.

HALL, C. E. [Associate Professor of Biophysics, Massachusetts Institute of Technology.] (1953). **Introduction to electron microscopy.** pp. ix+451. New York & London: McGraw-Hill Publishing Co. 64s. 6d. **1062**

This book evolved from a course of lectures on electron microscopy. The first ten chapters of 300 pages describe comprehensively the instruments and their physical theory at a level appropriate to the degree student in physics.

Of greater interest to the biologist is the concluding third of the book which deals with the methods and applications of electron microscopy in sufficient detail for the investigator to appreciate the status of available methods in relation to particular problems. The bibliographies are clearly arranged and references to specialist works are easily found.

A copy of the book should certainly accompany every electron microscope.

—C. J. BRADISH.

BIANCA, W. (1955). **A method of serial blood sampling and of injection for experimental farm animals.**—*Vet. Rec.* **67,** 791-792. **1063**

An account of a method for leaving a cannula inserted in the jugular vein, whereby serial blood sampling or repeated injections of anaesthetics could be performed without repeated puncture of the vein. It overcame errors in the estimation of blood values caused by excitement of the animal immediately following venipuncture.—D. POYNTER.

CAMBER, B. (1955). **A new design of syringe.** —*Lancet.* **269,** 804-805. **1064**

The plunger of this hypodermic syringe is hollow and sealed at both ends. It may be filled with fluid through a hole at its lower end which communicates with a longitudinal groove in the wall of the cylinder when the plunger is rotated. A corresponding hole and groove at the upper (outer) end permits the entry or escape of air. The syringe may be carried about loaded (liquid inside the plunger) without risk of spilling the contents, and the contents can readily be transferred from the plunger to the cylinder when required for use. Air accidentally drawn into the syringe during venipuncture can be discharged through the plunger without disconnecting the needle.—R.M.

DE BRUIN, J. J. M. (1955). Het bepalen van de lichaamstemperatuur bij slachtdieren langs electrische weg. **[Galvanometer for the rapid determination of body temperature of pigs before slaughter.]**—*Tijdschr. Diergeneesk.* **80,** 709-717. [English, French and German summaries.] **1065**

An account of the use of a galvanometer with a thermocouple, mounted in a needle, which is inserted behind the ear.

—C. A. VAN DORSSEN.

See also abstr. **694-695** (cultivation of tubercle bacilli); **696** (counting of tubercle bacilli); **756** (rapid slide agglutination by leptospiral antibodies); **762** (selective medium for Cl. welchii); **772** (cultivation of V. fetus and similar organisms); **780** (preparation of bovine contagious pleuro-pneumonia antigen); **1006** (haemoglobin determination in horse blood); **1085** (book, techniques of oestrogen determination); **1086** (book, paper electrophoresis); **1087** (book, sampling techniques).

MISCELLANEOUS

—. (1953). **Advances in biological and medical physics. Vol. III.** [Edited by: LAWRENCE, J. H. & TOBIAS, C. A.] pp. x+368. New York: Academic Press Inc. $8.00. **1066**

The present volume contains expert reviews of seven biophysical topics which, with their extensive bibliographies, provide a valuable reference work.

The review titles are, The dosimetry of artificial radioactive isotopes, The kinetics of biological processes, Antibodies as specific chemical reagents, Primary ionisation as a test of molecular organisation, Biological action of ultrasonic waves, Approaches to X-ray microscopy and ultraviolet microscopy and ultraviolet microspectroscopy.

The second and third of these reviews are of fundamental importance in the analysis and interpretation of biological processes and deserve to be studied by other than the specialist reader. The remaining reviews deal competently with some new and some established techniques. Of these the review on ultrasonic waves and ultraviolet microspectroscopy are of particular interest since the power of these physical tools is not widely appreciated.—C. J. BRADISH.

MÜLLER, H. (1955). Anatomische Grundlagen und Klinik der stabilen Osteosynthese (Marknagelung nach Küntscher) bei Hund und Katze. **[Anatomical basis for, and technique**

of, intramedullary pinning of fractures in dogs and cats.]—*Zbl. VetMed.* **2,** 1-56; 105-164. [English, French and Spanish summaries.] **1067**

An extensive and richly illustrated account of the intra-medullary pinning of fractures of the long bones of dogs and cats. M. recommended the use of V-shaped pins described (for human use) by Küntscher (1940). A section is devoted to post-operative infection. There are 164 photographs, diagrams or radiographs.—R.M.

REPORT

INDIA. (1955). **Annual Report of the Imperial Veterinary Research Institute, Mukteswar and Izatnagar, for the year 1946-47.** pp. 66. Simla: Govt. of India Press. Rs. 2/10/- or 4s. 3d. **1068**

The report covers the period—except for a very short time—when the Institute was under the directorship of the late Dr. F. C. Minett.

Virus diseases studied included RINDERPEST, NEWCASTLE DISEASE, FOWL POX, GOAT POX, DERMATITIS of goats and sheep, SWINE FEVER and F. & M. DISEASE.

Bacterial disease research included haemolytic streptococcal infection in the dog, SALMONELLOSIS in pigs and fowls and JOHNE'S DISEASE in lambs and kids.

A form of encephalomyelitis is described in Beetal goats in Angul and Orissa. The disease only affects Beetal goats imported from Hissar and not indigenous goats.

A considerable portion of the report deals with investigation on nutrition; for it is stated, as indicated by statistical data, that Indian livestock suffer essentially from food shortage. Extensive use was made of alkali-treated and water-washed straw for cattle feeding. Both types of treated straw augmented the milk yield.

The total poultry stock taken over from the Army consisted of 7,334 head and these produced 122,790 eggs during the year. Considerable work was done on poultry nutrition, breeding, disease, and marketing.

The life history of *Moniezia expansa* and the life history and pathogenicity of *Gastrothylax crumenifer*, the common amphistome in ruminants, were investigated.

Experiments were carried out on the transmission of ANTHRAX by various ticks and on the transmission of SURRA and RINDERPEST through insect agency.—D. S. RABAGLIATI.

BOOK REVIEWS

—. (1955). **Annual review of microbiology. Vol. IX.** [Edited by: CLIFTON, C. E., RAFFEL, S. & STANIER, R. Y.] pp. ix+426. Stanford, Calif.: Annual Reviews, Inc. $7.50. **1069**

The following chapters are of veterinary interest. Nomenclature of bacteria and viruses (R. E. Buchanan). Morphology of viruses, with mention of fowl pox, myxoma, Newcastle disease, fowl plague and equine encephalomyelitis (F. B. Bang). Growth, nutrition and metabolism of bacteria (A. Novick, E. L. R. Stokstad *et al.*, and E. A. Delwiche). Antibiotics (H. Eagle & A. K. Saz). Nature of the psittacosis-lymphogranuloma group of viruses (E. Weiss). Effect of ionizing radiation on resistance and infection (D. W. Talmage). Immunization (G. Edsall). Structure of antigen-antibody aggregates and complement fixation (J. Marrack). Resistance of bacterial spores, with reference to spore germination and its inhibition (C. F. Schmidt).

—R.M.

DUBOS, R. J. (1954). **Biochemical determinants of microbial diseases.** pp. viii+152. Cambridge, Mass.: Harvard University Press; (London: Geoffrey Cumberlege, Oxford University Press). $3.50. 28s. **1070**

The development of bacterial infection into overt disease depends not only on the properties of the infecting bacteria but also on those of the infected host. While much energy has been given to the study of the bacterial characteristics which are involved, the properties of the medium provided by the host have only been examined superficially, with the possible exception of those processes directly concerned with antibody production.

In this monograph the author has drawn attention to these omissions and he indicates some lines along which investigations might profitably be made to provide a biochemical explanation of host-parasite relationships. Much of the discussion, as the author admits, is speculative, owing to the lack of knowledge in this field.

The material is divided into five chapters entitled:— "Infection into disease"; "The fate of micro-organisms *in vivo*"; "Biochemical disturbances produced by infection"; "Selected topics in tuberculosis"; and "Immunity and inflammation". The book is well written and should prove stimulating to all those who are interested in bacterial disease.

—W. H. Parr.

Braun, W. (1953). **Bacterial genetics.** pp. xii+238. Philadelphia (& London): W. B. Saunders Co. 32s. 6d. **1071**

Progress in knowledge of bacterial genetics has been at a very rapid rate during recent years. An understanding of the nature and control of variation in bacteria is becoming increasingly necessary for bacteriologists.

Developments have come largely as a result of work by geneticists and their findings have often been published in journals not usually seen by bacteriologists.

A book such as this was very necessary and will be welcomed. It deals first with general genetical principles and then in some twelve chapters with various aspects of genetics, mutation, mutogenic agents, types of mutants, population changes and applications of this knowledge to bacteriological problems.

—. (1955). **Biochemistry and physiology of protozoa. Vol. II.** [Edited by: Hutner, S. H. & Lwoff, A.] pp. xiii+388. New York: Academic Press Inc.; (London: Academic Books Ltd.) $9.00. **1072**

In recent years the physiology of Protozoa has been studied not only in order to obtain knowledge of this Phylum but to obtain general information on fundamental problems of biological systems in general. The result is a rapidly accumulating mass of knowledge of very wide application, amply justifying the production of a second volume in this series, four years after the first.

This volume contains among others a chapter by S. H. Hutner and Luigi Provasoli on "The comparative biochemistry of flagellates"—including trypanosomes and *Trichomonas*; a chapter by R. E. Hungate on "Mutualistic intestinal protozoa", giving an account of ciliates of the rumen and flagellates of termites and *Cryptocercus*; and an excellent summary by L. G. Goodwin and I. M. Rollo of the "Chemotherapy of malaria, piroplasmosis, trypanosomiasis and leishmaniasis". This chapter clearly indicates how the study of the action of drugs has become closely related to a knowledge of the physiology of the parasites.

—L. P. Joyner.

Brien, P., Cordier, R., Dalcq, A., Devilliers, C., Florkin, M., Gérard, P., Lison, R., Matthey, R., Pasteels, J., Piveteau, J., Rochon-Duvigneaud, A. & Stéphan, F. (1954). Traité de zoologie, anatomie, systématique, biologie. Tome XII. Vertébrés: embryologie, grands problèmes d'anatomie comparée, caractéristiques biochimiques. **[Treatise of zoology. Vol. XII. Vertebrates.]** pp. 1145. Paris: Masson et Cie. Fr. 9800 & 10550. **1073**

This book is the twelfth volume of a work scheduled to occupy a total of 17 volumes.

It is devoted to a general introduction to the vertebrates and it is probably the most up-to-date and comprehensive book on its subject at present available.

The major part of the book is devoted to comparative anatomy in which the sections on the central nervous system and special sense organs are particularly noteworthy. The remainder contains an account of the embryology of the Phylum and a short but nevertheless interesting introduction to the comparative biochemistry of the group.

The printing and binding are of good quality. There are numerous line drawings and a number of photographs, most of which are of a very high standard.—L. P. Joyner.

—. (1955). **Advances in cancer research. Vol. III.** [Edited by: Greenstein, J. P. & Haddow, A.] pp. viii+369. New York: Academic Press Inc.; (London: Academic Books Ltd.) $8.50. **1074**

In this further volume in a series which is indispensable to all scientists concerned with cancer research, the article by R. Doll on the aetiology of lung cancer is likely to be of wider general interest. He discusses the increased incidence of human lung cancer, and probable aetiological factors—tobacco smoking and atmospheric pollution in particular. He sums up [p. 33.]: "In the author's opinion . . . . the facts are such that the hypothesis that cigarette smoking is a cause of the main histological types of lung cancer should be accepted . . . . The great majority of the observed facts accord with the hypothesis, but the picture is not yet complete." In a chapter on pulmonary tumours in experimental animals, M. B. Shimkin deals mainly with experimental tumours in mice. Other chapters are by H. P. Morris (The experi-

mental development and metabolism of thyroid gland tumours), A. and B. Pullman (Electronic structure and carcinogenic activity and aromatic molecules: new developments), P. Rondoni (Some aspects of carcinogenesis—some fundamental biochemical and biological considerations are included), and S. Weinhouse (Oxidative metabolism of neoplastic tissues).—E. COTCHIN.

ANTHONY, D. J. (1955). **Diseases of the pig and its husbandry.** pp. xi+369. London: Baillière, Tindall & Cox. 4th Edit. 25s. **1075**

In this fourth edition the arrangement of the material is on the same lines as in previous editions. Five chapters deal with the breeds of pigs, their husbandry and management. The remaining ten are concerned with the diseases of pigs. The arrangement of the chapters on disease is somewhat archaic and does not make for easy reference. For example Chapter VII has for its heading "Constitutional diseases (non-scheduled)". In this 24-page chapter are accounts of such widely different diseases as Aujeszky's disease, actinomycosis, rheumatism, diabetes, trypanosomiasis and many others. There is no connecting link whatever between the various diseases. There are four chapters each with the heading "Local diseases": the conditions dealt with in these chapters include such diseases as necrosis of the liver; prostatitis; mastitis; leucocytosis; neoplasms; ringworm and many others. There is a chapter on "Diseases caused by animal parasites", many of them exotic and of little economic importance. There are also chapters on poisons with a long account of poisoning by drinking excessive amounts of water and on *post-mortem* methods.

This book would be greatly improved by re-arrangement of the material, drastic pruning and correction of errors.

ANON. (1954). **Radiation biology. Vol. I: High energy radiation. Parts I & II.** [Edited by: HOLLAENDER, A.] pp. ix+626 & 627-1265. New York, (Toronto & London): McGraw-Hill Book Co., Inc. $17.50 both parts; not sold separately. **1076**

The first volume of this three-volume work of reference on radiation biology consists of two parts containing 18 chapters by various authors on the physical principles, biochemistry, genetic effects and injury from ionizing radiations. Publication of this work was sponsored by the National Research Council of the United States of America. It is excellently produced. References after each chapter total 150 full pages. The work is well indexed and there are numerous graphs and other illustrations.—E.G.

ANON. (1954). **Biological effects of external X and Gamma radiation. Part I.** [Edited by: ZIRKLE, R. E.] pp xxvi+530. New York, (Toronto & London): McGraw-Hill Book Co., Inc. 58s. **1077**

In the preface it is stated that the information contained in this volume was collected while developing methods for the production of plutonium, one of the tasks of the radiobiological research programme carried out during the second world war at the Metallurgical Laboratory, University of Chicago and the National Cancer Institute, Bethesda, Maryland. It contains 22 chapters, by various authors, dealing with the effects of continuous total body gamma-irradiation on life span, weight, blood picture, mating behaviour, tumour formation and other organ changes in laboratory animals, the effect of total body X-irradiation on the electrophoretic plasma-protein pattern in dogs and on enzymes and tissue metabolism, the ultra-violet absorption spectra in urine of irradiated animals and on the effectiveness of drugs in X-ray damage. References given at the end of chapters total 345. The book is sturdily bound and well indexed.—E.G.

VANNOTTI, A. [University Professor and Director of the University Medical Polyclinic, Lausanne]. [Translated by: RIMINGTON, C.] (1954). **Porphyrins. Their biological and chemical importance.** pp. 258. London: Hilger & Watts Ltd. 50s. **1078**

This book, based on an earlier monograph published in German in 1937 by Professor Vannotti, is a completely up-to-date account, in English, of the clinical and biological problems of porphyrin chemistry.

The opening chapters discuss the physico-chemical characteristics of porphyrins and the methods for their extraction and qualitative and quantitative analysis. Subsequent sections develop the importance of porphyrin groups to the structure of haemoglobin, and of the intracellular haems whose function is the regulation of certain cellular mechanisms. The book concludes with a pathological consideration of porphyrin metabolism, porphyria, and the treatment of porphyrin diseases.

—D. S. PAPWORTH.

—. (1954). **Connective tissue in health and disease.** [Edited by: ASBOE-HANSEN, G.] pp. 321. Copenhagen: Ejnar Munksgaard. Danish Kr. 50. [In English.] **1079**

This volume by a group of contributors including the pioneers of modern connective tissue research, presents recent advances within morphology, chemistry and physiology of connective tissues. The book is well produced and should recommend itself particularly to the veterinary pathologist.

—D. S. PAPWORTH.

ANON. (1955). **The Merck veterinary manual. A reference handbook of diagnosis and therapy for the veterinarian.** pp. ix+1398. Rahway, N.J.: Merck & Co., Inc. $7.50. **1080**

This compendium of veterinary science is up-to-date, accurate and well written. It is a new companion to the long-established Merck Manual of Diagnosis and Therapy and the Merck Index of Chemicals and Drugs. As well as the diseases of large and small domestic animals, those of fur, laboratory, and zoo animals and fish are described. A large section (160 pages) is devoted to nutrition; other sections deal with allergy, breeding and obstetrics, metabolic disturbances, parasitic diseases, infectious diseases, and diseases of each of the body systems. In an addendum there are accounts of radiography, laboratory tests, social behaviour in animals, disinfection, meat inspection, weights and measures and other information. The emphasis placed on conditions prevailing in North America is not such as to make the book unbalanced. Direct advertising by the publishers, who are manufacturing chemists, is almost absent, and the drugs mentioned are by no means exclusively their own products. This is a most useful reference book: it is difficult to find gaps in its coverage of veterinary science.—R.M.

—. (1954). **Textbook of organic medicinal and pharmaceutical chemistry.** [Edited by: WILSON, C. O. & GISVOLD, O.] pp. xvi+807. Philadelphia, (London & Montreal): J. B. Lippincott. 2nd Edit. 80s. **1081**

This book is likely to be of use to the veterinary research worker who either requires a quick introduction to those substances used as therapeutic aids, or wishes to have a handy reference book on the chemistry and pharmacological properties of products used in medicine and pharmacy.

Introductory chapters outline the physicochemical properties of compounds in relation to their biological action and the detoxication of drugs in the body. Other chapters deal with the individual compounds according to their chemical family, and included are sections on the vitamins, dyes, antibiotics, surface active agents, and diagnostic agents.

—D. S. PAPWORTH.

—. (1955). **International review of cytology. Vol. IV.** [Edited by: BOURNE, G. H. & DANIELLI, J. F.] pp. 419. New York: Academic Press Inc.; (London: Academic Books Ltd.) $9.00. **1082**

This fourth volume consists of twelve sections, ranging in length from ten to over fifty pages and contributed by specialists from more than half a dozen countries. The subjects of interest to veterinary workers include fixation of tissues, bacterial cytology, the histochemistry of bacteria, and goblet cells in the intestine. Other sections deal with plant mitochondria, chloroplasts, nucleic acids, and with the quantitative study of isolated cells or parts of them (cytological micrurgy). Most sections are profusely illustrated and all of them include extensive lists of references to published work up to 1954. This is a worthy member of what is undoubtedly a valuable series of reference works for all engaged in plant or animal cytological studies.

—E. G. WHITE.

CHALMERS, C. H. (1955). **Bacteria in relation to the milk supply. A practical guide for the commercial bacteriologist.** pp. viii+291. London: Edward Arnold (Publishers) Ltd. 4th Edit. 21s. **1083**

The many changes which have occurred in legislation and the many additions which have been made to scientific knowledge since the third edition was published in 1945 [*V.B.* **15,** 2104] have been incorporated in this fourth edition and the book brought up to date.

The general plan corresponds to that of the earlier editions. It covers the whole field of milk production and control, including the construction of cowsheds and dairy premises.

Two new appendices have been added: a description of the microscope, and the standards of specially designated milk.

This new edition will be welcomed and is unreservedly recommended.

—D. S. RABAGLIATI.

SCHÖNBERG, F. [Tierärztliche Hochschule, Hannover.] (Revised by.) (1955). **Lehrbuch**

der Schlachttier- und Fleischuntersuchung einschliesslich der tierärztlichen Lebensmittelüberwachung für Tierärzte und Studierende der Veterinärmedizin. **[Ostertag's textbook of meat inspection.]** pp. viii+777. 343 figs. Stuttgart: Ferdinand Enke. 2nd revised edit. DM 81 & DM 85.50. **1084**

Ostertag's standard work on veterinary meat inspection is brought up to date in this second, revised edition. Although largely rewritten, it has not undergone any essential alteration. The chapter-headings are as before, with but a few variations. As a modern improvement, the drawings of the old edition have in the main given place to photographs. There are many new illustrations, for instance 26 photographs of fishes. The coloured plates, however, have not been kept. Conciseness has been assisted by the omission of references to literature published before 1932 and unnecessary entries have been eliminated from the index, which is now considerably shorter. The paper, printing, binding and illustrations are of high standard.—M.G.G.

—. (1955). **The techniques and significance of oestrogen determinations. Memoirs of the Society for Endocrinology No. 3.** [Edited by: Eckstein, P. & Zuckerman, S.] pp. 96. Cambridge: University Press. 18s. **1085**

This volume reports eight papers dealing with :— new methods of oestrogen determination; sources of error in chemical determination; factors influencing the composition of urinary fractions and their separation by partition chromatography; the characterization of the oestrogens in human semen; the estimation, recovery and normal levels of oestradiol in human full-term placentae; the biological assay of oestrone and oestradiol in swine; and the value of oestrogen determinations to the clinician.

The book follows closely the pattern set in two earlier publications and provides a useful review of the newer techniques and lines of thought in this particular field. The veterinary worker will find the methods of value and the discussions of interest, although the emphasis is on the human rather than the animal aspects of the subject.

—D. S. Papworth.

Wunderly, C. [Wissenschaftlicher Mitarbeiter der Medizinischen Universitätsklinik Zürich.] (1954). Die Papierelektrophorese Methode und Ergebnisse. **[Paper electrophoresis.]** pp. 127. Aarau: Verlag H. R. Sauerländer & Co. Swiss Fr. 10. **1086**

Following an introductory note on the history of and terminology used in paper electrophoresis, there are sections on the theoretical principles, the methods used and the results obtained by this technique. Results are given of examination of protein in serum and other body tissues and fluids, enzymes, hormones, vitamins, pigments, lipoproteins etc., and there are chapters on electrophoretic differentiation of carbohydrates, amino-acids, inorganic ions and radioactive isotopes. There are 548 references and an adequate author and subject index. Paper and print are very good. The booklet is paper-backed.—E.G.

Cochran, W. G. [Professor of Biostatistics, School of Hygiene and Public Health, The Johns Hopkins University.] (1953). **Sampling techniques.**—pp. xiv+330. New York: John Wiley & Sons, Inc.; (London: Chapman & Hall, Ltd.) $6.50. 52s. **1087**

Since this book is based on a course of lectures to student statisticians it presents the details of sample survey techniques in their theoretical setting; each chapter has numerical examples and a set of exercises for the student. The mathematical knowledge assumed is "a knowledge of calculus as far as the determination of maxima and minima (using Lagrange's multipliers where required) plus a familiarity with elementary algebra, and especially with the use of summation signs". A knowledge of elementary statistical theory is also assumed.

To those who have the necessary background, the name of Cochran is a sufficient recommendation for they expect a well written and easily intelligible exposition. They will not be disappointed.

The examples are for the most part drawn from agriculture, though enough material from other sources is given in the examples and exercises to show that the same theoretical result can be applied to a wide range of problems.—F. B. Leech.

Patterson, A. M. [Professor Emeritus of Chemistry, Antioch College.] (1954). **A French-English dictionary for chemists.** pp. xiv+476. New York: John Wiley & Sons, Inc.; (London: Chapman & Hall, Ltd.) 2nd Edit. 52s. **1088**

The new edition of this dictionary is much larger in size than the previous edition, owing to the addition of many more words.

The whole text has been revised, and terms having identical meanings in French and in English have been omitted. As well as purely chemical terms, it contains general scientific words and names of common plants and animals. It is an invaluable aid for scientists who deal with French literature.—R.M.

THORNTON, J. L. [Librarian, St. Bartholomew's Hospital Medical College] & TULLY, R. I. J. [University College of North Wales, Bangor.] (1954). **Scientific books, libraries and collectors. A study of bibliography and the book trade in relation to science.** pp. x+288. London: The Library Association. 24s. **1089**

An account of the principal scientific works published before the end of the nineteenth century, with, in many instances, brief biographical notes on the authors. The growth of scientific periodical literature, publishing and bookselling is described. Good outline accounts are given of scientific bibliographies and modern scientific libraries. The work is a companion volume to J. L. Thornton's "Medical books, libraries and collectors" (1949).—D. E. GRAY.

BOOKS RECEIVED

[Notice of recently received books in this list does not preclude review].

ASDELL, S. A. (1955). **Cattle fertility and sterility.** pp. viii+227. London: J. & A. Churchill Ltd. 42s.

BOYD, G. A. (1955). **Autoradiography in biology and medicine.** pp. xiii+399. New York: Academic Press Inc.; (London: Academic Books Ltd.) $8.80.

BUXTON, P. A. (1955). **The natural history of tsetse flies. An account of the biology of the genus *Glossina* (Diptera).** pp. xviii+816. London: H. K. Lewis & Co. Ltd. (Memoir No. 10 of the London School of Hygiene and Tropical Medicine.) 84s.

DUKES, H. H. (1955). **The physiology of domestic animals.** pp. xii+1020. London: Baillière, Tindall & Cox. (Ithaca, N.Y.: Comstock Publishing Co., Inc.) 7th Edit. 75s.

HOFFMANN, G. (1955). Topographischer und zytologischer Atlas der Medulla oblongata von Schwein und Hund. **[Topographical and cytological atlas of the medulla oblongata of the pig and the dog.]** pp. 166. Berlin: Deutsche Akademie der Landwirtschaftswissenschaften. DM 34.

HORSFALL, W. R. (1955). **Mosquitoes: their bionomics and relation to disease.** pp. viii+723. London: Constable & Co. Ltd. (New York: The Ronald Press Co.) 105s.

OSOL, A. & FARRAR, G. E., JR. (1955). **The dispensatory of the United States of America.** pp. xviii+2139. Philadelphia & Montreal: J. B. Lippincott Co.; (London: Pitman Medical Publishing Co). 25th Edit. 200s.

TURNER, N. (1955). **Fertility pastures. Herbal leys as the basis of soil fertility and animal health.** pp. 204. London: Faber & Faber. 18s.

—. (1955). **Breeding beef cattle for unfavorable environments. A symposium presented at the King Ranch Centennial Conference.** [Edited by: RHOAD, A. O.] pp. xiv+248. Austin, Texas: University of Texas Press. $4.75.

—. (1955). **Mechanisms of microbial pathogenicity. Fifth symposium of the Society for General Microbiology, held at the Royal Institution, London, April, 1953.** [Edited by: HOWIE, J. W. & O'HEA, A. J.] pp. x+333. Cambridge: University Press. 25s.

—. (1955). **Group processes. Transactions of the First Conference, September 26, 27, 28, 29, and 30, 1954, Ithaca, New York.** [Sponsored by the Josiah Macy, Jr. Foundation.] [Edited by: SCHAFFNER, B.] pp. 334. New York: Josiah Macy, Jr. Foundation. $5.50.

—. (1955). **Administrative medicine. Transactions of the Third Conference, October 6, 7, and 8, 1954, Princeton, N.J.** [Sponsored by the Josiah Macy, Jr. Foundation.] [Edited by: STEVENSON, G. S.] pp. 172. New York: Josiah Macy, Jr. Foundation. $3.00.

Bulletins on disease subjects written for farmers and "popular" articles of a similar nature are not included in the *Veterinary Bulletin*. Those of a sufficiently important nature are, however, included in *Index Veterinarius*; so also are certain review articles, presidential addresses, congress proceedings, etc., where the title conveys as much information as could be given in an abstract of a few lines. For information of this nature, readers of the *Veterinary Bulletin* are referred to *Index Veterinarius*, where titles of all publications indexed by the bureau are fully cross-referenced.

The Editor will be glad to receive publications relating to Veterinary Science and cognate subjects in order that they may be dealt with in the *Veterinary Bulletin*.

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